

# AMERICAN ARTISAN and Hardware Record

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## Christmas Greetings

AT this time of the year when everybody is imbued with the Christmas spirit, it is with pleasure that we wish you a cheery and joyful Christmas.

ALLOW us also this opportunity to express our gratitude for the many favors conferred on us during our many years of pleasant business association.

May the New Year be the busiest and most successful one of your career.

THE GLOBE STOVE & RANGE CO.

"MASTER FURNACE BUILDERS"

KOKOMO, INDIANA



## "QUICK MEAL"

### Fusenamel Coal Ranges

*The Material  
Used in the Construction of These Ranges  
Has Eliminated the Liability of Rust.*

*Heat or Acids Will Not Affect It.*

"QUICK MEAL" Ranges have more *Distinct  
Special Features* than any other range.

The Fusenamel not only *Prevents Rust* but radiates heat back through the oven, thus *Saving Fuel* and making the *Most Economical Range* made.

*Made in three colors: Black, Blue or White*

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The Steel Furnace that is positively *gas-tight*, because it's *made right*.

Made of tested metal, cold-riveted together. No direct draft to warp and buckle. Stays in order.

If you're not handling the **FRONT RANK** you, your customers and we are all losing money. Write for illustrated literature and prices.

**FRONT RANK**  
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### Steel Furnace

is fool-proof. Gets more heat value out of the fuel used; because its radiating surface is greater, and more of the heat generated in burning the coal is extracted before the smoke and gases are passed on up the flue.

**Haynes-Langenberg Mfg. Co.**

4058 Forest Park Blvd.

St. Louis, Mo.



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Representative of  
The Hardware, Stove,  
Sheet Metal, and Warm  
Air Heating and Venti-  
lating Interests  
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UNDER THE STRESS of the day's work we are likely to acquire a habit of prosiness. We form the wrong kind of wrinkles. Instead of lines of humor around the eyes, we develop creases of peevishness. We become so obsessed by our business that we talk shop on all occasions. When things go awry, worry gnaws at our nerves as a dog at a bone. Once in a while we let the tension relax when we go to vaudeville or attend a banquet of our trade association. The next day we slip into the old groove. Between times we promise ourselves that we will take things easy some day and enjoy the fruits of our labors. Thus life passes. Presently, old age is upon us. Our neighbors find us dull and, mayhap, garrulous—as bereft of humor as the Sahara desert. We may have amassed dollars, but we have failed to accumulate the fund of mirth and good cheer which is the only safeguard against bankruptcy of mind and heart.

With due regard for every shade of belief and interpretation, it may be said that happiness is the supreme purpose of life. Not fortune nor fame nor power can adequately take the place of gladness. Laughter makes good blood, as the Italian proverb has it. Mirth and good cheer keep the arteries robust and pliant. The worker who hums a pleasant ditty at his bench or the employer who faces the hardest problems with a smile upon his lips gets the most work done and derives the biggest values from existence. No matter from what angle we view the subject, gaiety is more wholesome than solemnity. Milton's picture of "laughter holding both his sides" is the sort of tonic to the imagination which the world needs instead of the narcotic dirge of the pessimists. Wholly apart, then, from any theologic or sectarian phase of the Christmas season, it is worth while to take advantage of the general blithesomeness of these holidays to free ourselves from regrets, dejection, and querulousness. These are the thoughts back of the sincere wish of AMERICAN ARTISAN AND HARDWARE RECORD in saying "Merry Christmas!" to its many friends—subscribers and advertisers, and their sons and daughters, wives, husbands, sweethearts, and apprentices.

A BRITISH JOURNALIST who is a keen judge of tendencies and events in the business world says that increase in production is being delayed by the psychological effect of the war. **World Will Not Go Back** upon labor and the human race generally. It is over a year since the war

ended and yet food cards are still being utilized in Great Britain and prices for commodities necessary to life are higher generally than at any time during the war.

Scarcely anyone could have imagined a year or two ago the scramble for goods now being experienced. Only last year the opinion prevailed that after two or three years of increased activity great depression in trade and a severe drop in prices would come as a natural economic effect of the heart-breaking destruction sustained during the war. Now, ideas are being changed radically, the indication being that it will be five years, perhaps even ten years, before the reaction comes. In fact, on account of the new forces, mental and physical, created by the war, it may be that we are entering new world conditions without a precedent. The effect of the forces of action and reaction may be prolonged far beyond the time that any economist may predict; but at this time an economist is the last man to be selected as a guide. We are in a new ocean, subject to tides about which we know nothing.

What has been said above about production, consumption and prices of commodities in general, applies with equal force to iron and steel and other metals. The outlook seems to be for high prices on all metals for years to come, certainly much higher than those prevailing today.

The world is bare of all commodities and will continue bare for a long time (and this is especially the case as regards England and the Continent). High prices will last for years, based upon scarcity and demand, even if there were no other reasons, such as the depreciation in sterling and continental exchanges and the rise of silver. Except for the United States and Japan, the world is no longer on a gold basis. It seems inevitable that prices for all goods in the United States will advance very much more than they have, especially for those goods into which labor enters largely.

Europe must and will settle down. The war is not going to make these hundred millions of people—Germany included—"hewers of wood and drawers of water." It is certain that a greater civilization than that which existed before the war, with its increased demand, will be born. The United States, with a new high level of prices faces a foreign demand that will tax its abilities to satisfy. No one should be a bear on prices, for no one knows what is a normal price under the new world conditions. Never was there such a time in the United States for business, for genius, for courage and for leadership. The initia-



tive must be taken by business men; not by the government. A great vision opens of business activity and of remunerative prices for years to come.

IN ORDER TO meet the plausible objections of customers in these days of price investigation, the retailer should inform himself concerning the **Prices And** economic principles involved. This **The Public.** necessity grows more pressing, as costs continue to rise. Political expediency impels certain public officials to make a great ado in the newspapers regarding the high cost of living. The people get the impression that they are being robbed by unscrupulous merchants. In many cases, the retailer is not in possession of sufficient knowledge to satisfy his customers that he is dealing fairly with them. The perplexities arising from this state of affairs have been thoroughly studied and in a large measure overcome by the Retail Merchants' Association of Canada.

In a statement submitted to the Board of Commerce by the Manitoba Provincial Board of the Retail Merchants' Association of Canada it is pointed out that the public's knowledge of prices and values is almost solely confined to the retail quotations. As a rule they do not consider and are not aware of all the elements that necessarily enter into the determining of the retail prices of goods.

The people are inclined to consider as profit either the difference between the retail price and the invoice price, or the difference between the price which the consumer pays to the merchant and the price which the merchant pays to the wholesaler or manufacturer, without taking into account the numerous other elements which enter into the cost of the goods to the merchant and all of which must be added, such as freight, rent, wages, insurance, delivery, paper, twine, interest, and losses on unsaleable goods. What is really the true way of measuring profit is by finding out the difference between the total cost to the merchant of all articles sold during a given time, such cost including every legitimate charge of doing business, and the total price which he receives for the goods sold during that time.

Furthermore, wrong deductions are made by failing to consider as part of the cost of the sold goods such items as freight, insurance, interest on the cost of goods, interest on moneys spent in equipment and furnishings, depreciation of equipment and furnishings, rent, taxes, wages, cost of paper, twine and other accessories, stationery, etc., advertising, cost of draying and delivery, cost of collection of accounts, bad debts, etc., as well as the probable quantity of goods which must be sold below the marked price. All of these must be paid by the merchant and are as much a part of the cost of the goods sold as is the invoice price, or price paid to the wholesaler or manufacturer, and all of them must be taken into account by the merchant is fixing his marked price. The charge of profiteering should not be made or suggested against any merchant unless all of these additional factors have been examined and taken into account.

The confusion of terms that surrounds the discussion of profits is responsible for most of the unfair

inferences that have been drawn by the public from the more or less sensational and unreliable agitation in the daily papers. The principal subject of interest is the profit, and various conclusions are reached as to the amount of this profit. There is only one kind of profit in business, and that is net profit. What is erroneously described as gross profit includes the expense of transacting business. No corporation or firm can ignore operating costs when calculating its net earnings.

COMMERCE IS AS intricate as the human body. Its units are as closely related to and dependent upon one another as the organs of the human body. There is an accurate analogy between the functions of both. Conserving the strength of the body through frugality and careful habits of living promotes its general health and prolongs life. Similarly, commerce is promoted by the exercise of thrift throughout the nation. Some merchants there are who wrongly imagine that the practice of thrift would result in lessening of demand for commodities and thus adversely influence their business. The objection which they raise is clearly refuted by Joseph E. Cummings of the Department of Economics of the University of Minnesota in a recent article.

He reasons that if we spend for thoughtless and unessential trifles, we are diverting precious labor power to the industries which produce these useless and frequently harmful commodities. If we save some of our income and make safe and sane investments such as have been offered by the Government since the beginning of the war, we are turning some portion of the world's labor power to the production of useful and wholesome commodities.

Purchasing power is the despotic ruler of the industrial world. Machines, raw materials, and labor are devoted to making shoes, bread, or winter hats in proportion demanded by purchasing power. If purchasing power asked nothing but cream puffs and those in unlimited quantities, we would soon see every factory and every workman energetically devoted to making cream puffs and nothing else.

The amount of material and energy devoted to the production of any one article is in direct proportion to our desire for that article as expressed in terms of purchasing power. When the individual and national characteristic of careless and thoughtless spending is replaced by thrift and investment in war savings stamps, Treasury savings certificates and Liberty bonds, the great boss, Purchasing Power, will be just as strong as ever but his demands will be changed. The demand for wholesome and substantial food, comfortable homes, good clothing, and healthful recreation will increase at the expense of fantastic luxuries and useless novelties. Only in case savings are hoarded and removed from circulation is there possibility of decrease in demand for labor.

"Thrift and wise spending do not dam up the stream of labor; they simply change the direction of the flow," is the conclusion of Professor Cummings. "Thrift is the steering wheel and not the brake on our industrial machine." By a strange paradox, the man



who saves money spends more than the man who squanders it. That is to say, he buys what he needs when he needs it. Instead of purchasing some makeshift, he has the funds with which to buy goods which adequately meet his requirements. Consequently, he is a better customer and the profit from his patronage is bigger and therefore more desirable.

### **RANDOM NOTES AND SKETCHES.**

By Sidney Arnold.

I have heard many toasts at banquets. The one I like best is this toast to laughter:

Here's to laughter, the sunshine of the soul, the happiness of the heart, the leaven of youth, the privilege of purity, the echo of innocence, the treasure of the humble, the wealth of the poor, the bead of the cup of pleasure. It dispels dejection, banishes blues and mangles melancholy; for it's the foe of woe, the destroyer of depression, the enemy of grief. It is what kings envy peasants, plutocrats envy the poor, the guilty envy the innocent. It's the sheen on the silver of smiles, the ripple on the water's delight, the glint of the gold of gladness. Without it, humor would be dumb, wit would wither, dimples would disappear and smiles would shrivel, for it's a glow of a clean conscience, the voice of a pure soul, the birth cry of mirth, the swan-song of sadness. Laughter!

\* \* \*

My friend F. M. Ruddell, Secretary-Treasurer and General Manager Globe Stove and Range Company, Kokomo, Indiana, was in Chicago Friday of this week and found time to come to my office to wish me a Merry Christmas.

\* \* \*

Once in a while one can get a hearty laugh from the pages of the Congressional Record. Here is one from a recent issue:

"Mr. King. Mr. Chairman, in the time granted me I desire to send up and have read at the clerk's desk a communication received this morning from the Hon.

"The Chairman. The clerk will read.

"The clerk read as follows:

"I have been held up, held down, sandbagged, walked on, sat on, flattened out, and squeezed. First by the United States government for federal war tax, Liberty Loan Bonds, Thrift Stamps, War Savings Stamps; for state, county, and other taxes, capital stock tax, and auto tax; and by every society and organization that inventive mind can invent and extract whatever I may or may not possess.

"The government has so governed my business that I do not know who owns it.

"I am inspected, suspected, examined, re-examined, informed, required, restrained, and commanded, so that I don't know who I am, where I am, or why I am here.

"All that I know is that I am supposed to be an inexhaustible supply of money for every human need, desire or hope of the human race, and because I will not sell all I have and go out and beg, borrow, or steal money to give away, I have been cussed, discussed, boycotted, talked to, talked about, lied to, lied

about, held up, robbed, and nearly ruined; and the only reason I am clinging to life is to see what is coming off next."

\* \* \*

It is not always difficult to find an adequate answer to a question, as shown in the following story related by my friend, C. E. Hodges of the Utica Heater Company, Utica, New York:

A young widow had just remarried and hubby number two was causing her much anxiety.

"I cannot understand why my husband is so fastidious," she confessed to a friend. "He scarcely eats anything. Now, my first husband, who died, used to eat everything that I cooked for him."

"Did you tell your present husband that?" queried the friend.

"Oh, yes! Of course. Why?"

"Well, perhaps that's the reason."

\* \* \*

We were discussing the habits of a mutual acquaintance and I asked my friend Charles Peffley of George M. Clark and Company, Chicago, Illinois, why he thought the acquaintance was a vegetarian.

"I have smoked his cigars," was Peffley's answer.

\* \* \*

No one can escape the workings of heredity, remarks my friend Rudolph J. Schwab of R. J. Schwab and Sons Company, Milwaukee, Wisconsin. He illustrates the fact with this story:

Miss Capron, the school teacher, had punished little Sammy so often for talking in school and the punishment had been so ineffective that, as a last resort, she decided to notify Sammy's father.

Beneath the department mark of the next report sent to the father, Miss Capron wrote:

"Sammy talks a very great deal."

The report was duly returned with the father's signature, followed by these words:

"You ought to hear his mother!"

\* \* \*

I do not profess to know much about the minds of animals. Maybe they have no minds. Often I am at a loss to specify the really vital differences between men and animals. In some things they are better than we are. Their instincts are more finely developed. I fancy, however, that the thing which most sharply differentiates us from them is that we possess the power of choice. That is probably the reason why we have evolved to higher stages. I am strongly of the opinion that we shall continue to evolve in the degree in which we exercise wisdom when choosing matters for thought and action. Something of this thought is in the following stanzas:

#### **The Matter of Choice.**

Not what we have, but what we use,  
Not what we see, but what we choose;  
These are the things that mar or bless,  
The sum of human happiness.

The thing near by, not that afar,  
Not what we seem, but what we are;  
These are things that make or break,  
That give the heart its joy or ache.

Not what seems fair, but what is true;  
Not what we dream, but good we do;  
These are the things that shine like gems,  
Like stars in fortune's diadems.

# AMERICAN ARTISAN

## BERT J. HAWKINS.

Left an orphan when a small boy, Bert J. Hawkins received no schooling in his youth. He had to go to work at an age when other lads were learning to read and write. Soon after the untimely departure from this life of his parents he left Detroit, Michigan, where he was born July 25, 1880. He contrived to get as far as Chicago, Illinois. Driven by the inexorable need of food and shelter, he secured a job as a cash boy in Marshall Field and Company's retail store. Even in those days of reasonable prices, he encountered many difficulties in making his wages of three dollars a week cover his expenses of lodging, meals, and clothing. Young though he was, he felt keenly his lack of education. There were no night schools to which he could have recourse to supply the deficiency.

Necessity had compelled him to form the habit of self-reliance. Not for the reason that they were callous to the boy's plight but because they were absorbed in the struggle for existence, the people among whom he lived were not greatly concerned about his lack of instruction. He perceived that he would have to train himself in knowledge. He set about the task with the conviction that knowledge is the key to the map of life. He toiled over his books at the end of the day's work and on Sundays and holidays. Of set purpose, he denied himself many of the delights and amusements of boyhood in order that he might become proficient in reading, writing, grammar, arithmetic, and history.

Notwithstanding the grim discipline to which he subjected himself, he soon reached a stage of development in which his weekly wages of three dollars proved wholly inadequate to his wants. Accordingly, he sought and obtained better paying employment. Temptations came to him many a time and discouragement assailed his resolution to go forward along the way which he had chosen. But, although he drifted from one job to another in quest of betterment, he never lost sight of his purpose.

Always he kept himself physically clean and fit. At eighteen years of age he had the appearance of a young man of twenty-one. He was above the aver-

age height and well-proportioned. Therefore, he had no trouble in securing a position in the operating department of a railroad. As in the case of all new employes, he was put on the "extra list." In other words, he worked only from ten to fifteen days a month. True to his boyhood's ambitions, he made the most of his idle time. During the two or three weeks of the month when he was not occupied, he applied himself to mastering the trade of plumber and carpenter. When he became skillful enough in these crafts to satisfy the requirements of building contractors, he succeeded in getting enough odd jobs to keep him employed during the days when he was not called to go out on the road.



His early experiences had taught him the value and necessity of thrift. Also, the discipline to which he subjected himself gave him self-control. Hence he soon had saved enough money to establish himself in the plumbing business. The knowledge which he acquired of mechanics and his practical experience in the use of tools and building hardware as a plumber and carpenter inspired him to enter the hardware field. And so he formed the Uneek Hardware Company, 448 Rush Street, Chicago, Illinois. He is now owner and manager of the store. As a hardware merchant he has the advantage of familiarity with the actual use of the commodities which he sells. He knows the mean-

ing of service and the value of courtesy.

His popularity in the retail hardware trade of Chicago is evidenced by his recent election to the presidency of the Chicago Retail Hardware Association. He still holds his membership in the Brotherhood of Railway Trainmen and has filled every office in the Trainmen's Lodge. He has the honor of having organized the biggest lodge of Elks in America, namely, Oak Park Lodge Number 1295, of which he was elected the first Exalted Ruler. At the expiration of his term, he was voted an honorary life membership and made a member of the Grand Lodge of Elks. Fishing and swimming are his favorite diversions. He has a cheerful disposition and there is always a merry twinkle in his eyes.



# HALL OF FAME

## OWEN MOYNIHAN.

Appraisals of persons are far more difficult to make than of things. A hammer, for instance, consists of metals which are capable of accurate analysis in the laboratory. The chemist can determine the proportions of iron, carbon and vanadium which enter into its composition. But there is no laboratory, however marvelous its apparatus and methods, in which a comprehensive analysis of man can be accomplished. The reason is that man is a complex of such infinite variations and inheritances that his qualities can not be estimated by a formula nor the contents of his personality tabulated with precision.

Man is a microcosm—a universe in miniature. He has reserves of power and possibilities of performance of which he himself seldom senses the number and extent. The "mute inglorious Milton" and the "village Hampden that with dauntless breast the little tyrant of his fields withstood" are not merely figments of the poet's imagination. They are symbols for which the translation is found on every page of history. General Grant evolving from the obscurity of work on a canal boat to the leadership of armies and the presidency of the United States has his counterpart, in less spectacular guise, in every walk of life.

The comment is sometimes made that the biography of a man with whom one chances to be acquainted is too flattering or that it presents him in an artificial light or decks him forth in virtues and talents several sizes too large for his character, as it were. The truth is that no man fully understands himself, much less another man. The cosmos of emotions, ideas, impulses, passions, desires, and latent energies has an infinitude of unexplored spaces in the subconscious mind whose potentialities no one can measure or estimate. It is impossible, therefore, adequately to portray all the units of a character. The best that one can hope to do is to sketch certain familiar traits which serve to identify the individual to his friends and acquaintances and from which an appreciable degree of helpfulness may be derived for those who are striving to reach the same goal.

It is from such a perspective that one may view

with profit some of the achievements of Owen Moynihan, who for the past few years has been General Sales Manager for one of the important Akron, Ohio, tire companies. He might have developed into a diplomat, a journalist, a labor leader, a banker, or an astronomer. But his faculties turned at a tangent to the circle of these avocations and his talents evolved along the line of salesmanship. He was born in London, England, September 17, 1879, and received a good education. Early in his business career he became fascinated by the allurements of salesmanship. He perceived the romance of it, the opportunities for initiative and self-development which it afforded in copious measure, and the pleasant friendships which it engendered.



When he came to America, intent upon perfecting himself in the art and science of salesmanship, he found that merit is quickly recognized in this country. He soon worked his way to a position of prominence in the merchandising of rubber tires and was for some time Eastern representative of two different Akron, Ohio, tire companies. Later, he was induced to go to Akron and become General Sales Manager of a corporation engaged in the manufacture of rubber products. He has recently resigned this position to assume the active management of a new corporation, The Malay Rubber Company, which is soon to be incorporated in Cleveland, Ohio, for the purpose of manufacturing a high grade tire and merchandising it

along lines to be determined by distributors and dealers in all parts of the country who are interested in organizing The Malay Rubber Company.

His experience in tire distribution fits him for his position as General Manager of that company. He will have associated with him tire experts to care for every phase of manufacture, sales, and advertising. The Malay Rubber Company under his direction offers probably the first instance where a tire company will come into the market with its distributing organization completed before manufacturing is well under way. To Mr. Moynihan is due much of the credit for this remarkable development. His salesmanship is vitalized by pleasant manners and mellow humor.

## UP TO THE MINUTE NEWS SIFTINGS

### CONFERENCE OF STOVE FOUNDERS AND MOLDERS ENTERS INTO NEW AGREEMENT FOR NEXT YEAR.

The annual conference between a committee of the Stove Founders National Defense Association and a committee of the International Molders' Union of North America which had been going on for several days at Atlantic City, New Jersey, came to a satisfactory conclusion December 13, 1919. The conference was held in pursuance of a compact made between the two organizations in the year 1891. Its purpose was to deal with wages and working conditions and to maintain and strengthen the harmonious relations existing between the employers and their workmen. The first conference, which took place 28 years ago, laid down the principles which constitute the enduring foundation upon which the structure of good will and mutual respect has been built and enlarged during the intervening years.

That the principle of arbitration is capable of practical application to the difficulties of a given industry is amply demonstrated by more than a quarter of a century of peaceful development in the stove industry. In a right conception of economic relations there is no place for conflict of interest between employer and employe. Patience, intelligence, forbearance, and justice tempered with friendliness are powerful factors in warding off labor disturbances and promoting the prosperity of all concerned.

It is reported that an increase of approximately ten per cent in wages was granted by the Atlantic City Conference to the members of the International Molders' Union of North America, employed by stove manufacturers who belong to the Stove Founders' National Defense Association. Inasmuch as Clause 5 of the 1892 Conference Agreements declared that "the general rate of molders' wages should be established for each year without change," the increase of wages will remain in effect until December 31, 1920.

In addition to the ten per cent increase in wages, the molders secured from the stove manufacturers a concession with regard to "the cutting over" of the sand as well as the shaking out of it. The molders themselves formerly did this work. Under the new agreement it is to be performed at the expense of the manufacturers.

In view of the numerous cases of labor disagreements and strikes throughout the country, it is greatly to the credit of the Stove Founders' National Defense Association as well as to the International Molders' Union of North America that they recognize and practice the principle of arbitration in settling whatever differences may arise between them. The significance of the recent Atlantic City Conference is not limited to the stove industry. It has value for

every industry. It proves to the pessimist that a measure of industrial democracy is not only feasible but profitable. It makes evident the fact as well as the need of human relationship in the production of commodities. It is a beacon light illumining the path to peace, progress, and prosperity.

### REPORT OF BUREAU OF STANDARDS SHOWS HOW IT AIDS BUSINESS AND MANUFACTURE.

That the Bureau of Standards of the Department of Commerce has given invaluable aid to the industries of the country is emphasized by S. W. Stratton, director of the bureau, in his annual report. He says:

"The fundamental acts regarding standards of measurement, quality or performance are the very things which most deeply concern manufacturers. They are fundamentally concerned, either directly or indirectly, with the improvement of methods of production or the quality of the output.

"It may be said the bureau occupies somewhat the same position with respect to the manufacturing interests of this country that the bureaus of the Department of Agriculture do to the agricultural interests. Many industries are just beginning to realize the importance of precise methods of measurement and scientific investigation, which, in practically every case, involve some kind of measurement.

"It is upon quality as well as upon price that competition must finally depend, whether in domestic or foreign commerce. The use of exact methods and scientific results is the greatest factor in the improvement of quality, efficiency or the development of new industries. The educational value of the bureau's work in this respect is almost entirely unknown to the general public, and yet the bureau receives hundreds of letters, as well as many personal visits from manufacturers, seeking information as to standards of measurement, how to use them, how to measure the properties of materials, or as to the fundamental physical and chemical principles involved; also, what is of even greater importance, how to initiate and carry out scientific investigations and tests on their own account in their particular fields of work.

"The importance of maintaining scientific institutions having to do with standardization and the application of precise measurements to the industries has been recognized by all leading countries. Great Britain maintains the standards department of the Board of Trade, which is in charge of the standards and inspection service of the trade weights and measures; also the national physical laboratory, whose functions include matters pertaining to scientific and technical standards. The Laboratoire d'Essais of France, while not as extensive as the English institution, is charged with similar duties.



"Germany maintains three such institutions—the normal-eichungs kommission, equipped with the buildings, personnel, and apparatus necessary in standardizing and controlling the weights and measures of trade; the Physikalisch-Technische Reichsanstalt, covering testing and investigations in connection with scientific and technical standards other than weights and measures; and the Prussian Government maintains the Materialprüfungsamt, a large institution devoted to the investigating and testing of structural, engineering and other materials.

"It is generally recognized that these institutions have been exceedingly important factors in the industrial progress of these countries.

"While the greater part of the bureau's efforts were given up during the war to work in connection with the military departments of the Government, it was never before called upon to such an extent for advice and scientific data by the industries. Most of these questions arose out of the manufacture of equipment and material of a military nature, as a large number of firms entered into this work during the war without any great amount of previous experience. A great many of these requests came directly from the manufacturers, others through the War Industries' Board, and still others from various commissions having to do with the production and commercial aspects of the war.

"Every section of the bureau coöperated to a greater or lesser extent with the manufacturers of the country, and, as a result, closer relations have been established between the industrial plants and the bureau. It is evident that this relationship will continue and become of great economic value; but, if the bureau is to retain its high position in the various industrial fields and meet the rapidly increasing demands for its service, the greatest amount of support possible must be given to it by the industries.

"Through the increased activities of nearly all the industries of the country and the demand for trained investigators, the bureau's scientific staff has been largely depleted, and it will be a matter of some time before it can be brought back to the plane of high efficiency which it has previously maintained. It is assumed that the compensation paid scientific and technical men in the government service will be adjusted to a scale more commensurate with that paid by scientific institutions and industrial laboratories, but even then the industries should coöperate in every way possible to maintain the bureau's staff intact and of the best material.

"Many instances could be given where the industries have taken experts with little warning and with no apparent consideration as to the consequences. The training of men for research is one of the most important ways in which the bureau can aid the industries; but to do this it is necessary to maintain its own staff in the highest degree of efficiency."

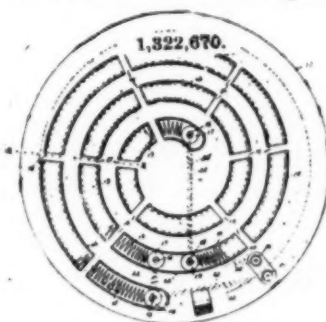
#### **ISSUES INTERESTING HOUSE ORGAN.**

An interesting house organ, *The Red Star News*, is published by the Detroit Vapor Stove Company, Detroit, Michigan. From the very first issue, this paper has been replete with useful information to dealers

and those connected with the stove trade in general. Distributors will find valuable instruction on many phases of their business, such as, advertising, displaying, etc., in this paper issued by The Detroit Vapor Stove Company. *The Red Star News* is a neat looking publication. Merchants desiring to receive this paper should write to the Detroit Vapor Stove Company, Detroit, Michigan, to that effect.

#### **ELECTRIC HEATING ATTACHMENT FOR COOK STOVES IS PATENTED.**

United States patent rights, under number 1,322,670, have been procured by Joseph Albert Dagenais, Hull, Quebec, Canada, for an electric heating attachment for cook stoves and ranges described herewith:



An electric heating unit consisting of a metallic plate formed with a spiral groove and with radial strips rigid with said plate and extended across said groove, electric coils in said groove and retained by and beneath said strips, insulating material in said groove, and means connecting said coils in parallel.

#### **HUGH A. COLE IS CONVALESCENT.**

It is with much pleasure that the numerous friends of Hugh A. Cole of the Cole Manufacturing Company, Chicago, Illinois, stove makers, learn that he is rapidly recovering from his recent attack of pneumonia. He is now able to be up and around and is gaining strength every day.

#### **THREE ORGANIZATIONS OF STOVE MANUFACTURERS HOLD MEETINGS IN NEW YORK CITY.**

Advancing cost of labor and materials formed the main topics for discussion at meetings in New York City of three organizations of stove manufacturers.

The Maryland and Virginia Stove Manufacturers' Association met at Hotel Astor, New York City, Wednesday, December 17, 1919.

At the same hotel on Thursday, December 18, 1919, a gathering of the New York Stove Manufacturers assembled for the same purpose.

Friday, December 19, 1919, the Eastern Pennsylvania Stove Makers came together at Hotel Astor to discuss the same subject of advancing cost of labor and material.

All three associations reached practically the same conclusion. The expenses of production are found to be practically the same in the Maryland and Virginia as in the New York and Pennsylvania districts.

While no concerted action was taken with reference to prices, it is probable that the stove manufacturers affiliated with the three organizations above mentioned will be compelled by the higher cost of production to make at least ten per cent increase in the prices of their output in order to maintain their business at a reasonable minimum of profit.

# THE WEEK'S HARDWARE RECORD

*Of Interest to Manufacturer, Jobber and Retailer*

**AMERICAN ARTISAN AND HARDWARE RECORD is the only publication containing western hardware and metal prices corrected weekly. You will find these on pages 48 to 53 inclusive.**

## WILL CELEBRATE THE CLOSING OF MEMBERSHIP CAMPAIGN.

The vigorous campaign for membership which is being carried on by the Hardware Club of Chicago under the leadership of H. A. Squibbs of the American Steel and Wire Company, will be brought to a close Tuesday noon, December 23, 1919. In the evening of that same day, a Wild West Stag is to be held in the rooms of the Hardware Club of Chicago, State and Lake Building, southwest corner Lake and State Streets, Chicago, Illinois, to welcome the new members gained during the Membership Drive. An extensive and entertaining program has been arranged for the occasion. Men of the hardware and allied trades who have joined the club during this Membership Campaign will gain an idea of the hospitality and goodfellowship of the organization at the forthcoming stag party which will make them congratulate themselves upon their good fortune in becoming associated with so progressive an organization.

## EXPLAINS DIFFERENCE BETWEEN CUT NAILS AND WIRE NAILS.

In answer to a query asking for a comparison of cut nails and wire nails for use in building construction, the *National Builder* explains that cut nails are cut or stamped from sheets of steel or iron by means of machinery, thus they are rectangular in section. Wire nails are made from steel wire, which is also headed and pointed by machinery. Wire nails for domestic use are almost always drawn round in section, but for export purposes they are also made in oval, rectangular and diamond shapes.

Cut nails made of iron are considered more durable for exposed locations than are those made of steel. In general, the classifications of cut nails are similar to those for cut ones, namely, common, finish, and casing.

Wire nails are usually preferred by carpenters, as they drive easier, are not so likely to bend or break, nor to split the wood. On the other hand, cut nails have more holding power than wire nails and where warping of lumber or other unusual strains are to be provided for, it is well to use cut nails. A United States Arsenal test covering separate tests on forty different sizes of nails driven in spruce, gave the cut nails an average holding power that was more than 60 per cent greater than was that for wire nails.

On account of their superior qualities of durability

and holding power, cut nails are coming back into general use.

While on the subject of nails, it may be of interest to note that the name "penny" used in designating the size of nails, arose from an old English trade custom which denoted the number of pennies to be paid for 100 nails. For instance, 10 pennies (abbreviated tod.) would buy 100 "ten-penny" nails.

## PLACES AMERICAN ARTISAN IN THE READING ROOM OF LIBRARY.

The Board of Trustees of the New Castle Free Public Library, New Castle, Pennsylvania, has placed *AMERICAN ARTISAN AND HARDWARE RECORD* on the reading room tables of that institution. To acquaint the public with this addition to its collection of periodicals, the librarian, Alice M. Sterling, has sent the following note to the local newspapers of New Castle, Pennsylvania:

"A much needed addition to the reading tables at the public library has lately been made in the form of *The AMERICAN ARTISAN AND HARDWARE RECORD*, a weekly devoted to the interests of the hardware trade. A representative number contains an editorial on the warm air heating industry, sketches of Herman Walter Sigrist and John V. Patten, news of trade conferences and events, list of prices corrected weekly, new tools and devices, automobile accessories, illustrated articles on heating and ventilating, and trade and market conditions. The magazine comes by the courtesy of the publisher, Mr. Daniel Stern, and is already being read and appreciated by men interested in the hardware business."

## ASKS DATA ABOUT "WARE ETERNAL" ALUMINUM WARE.

TO *AMERICAN ARTISAN AND HARDWARE RECORD*:

Diligent inquiry in many quarters has failed to enable us to discover who manufactures "Ware Eternal" aluminum ware. We are therefore appealing to your readers in hope that some one of them can give us the desired information.

Yours truly, H. ROBINSON COMPANY.  
Springfield, Illinois, December 15, 1919.

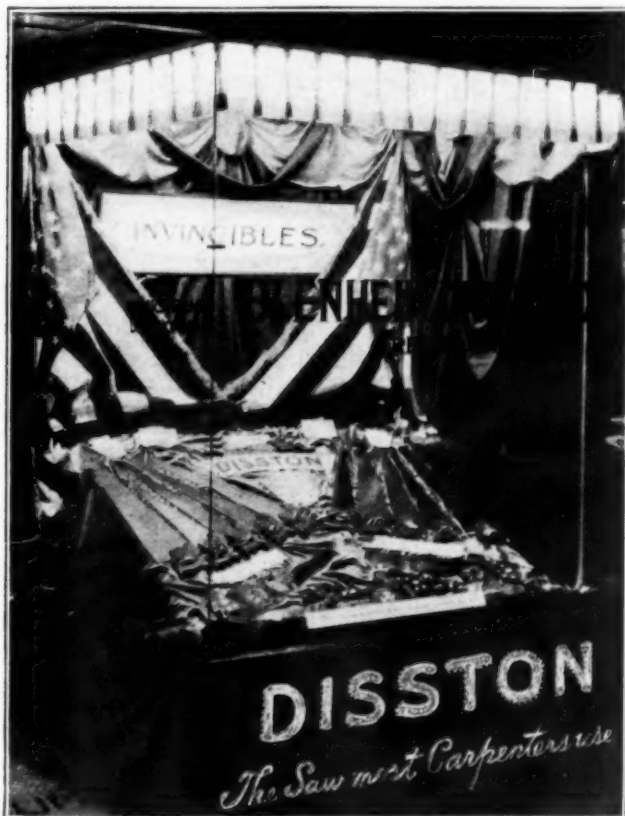
## MUST KNOW HOW TO CHOOSE ASSISTANTS.

A man to become great in any line of endeavor must have the knack of properly choosing his subordinates. As well as possessing a pleasing, inviting personality of his own, he must select his clerks with a view to extending in wider degree the personality that has attracted customers to his place of business.



### UNCOMMONLY INTERESTING DISPLAY OF DISSTON SAWS ATTRACTS MUCH ATTENTION.

Entirely apart from its commercial aspects, uncommon interest attaches to the display of Disston saws in the window near the headquarters of the American Hardware Manufacturers' Association convention during the week of October 13 to 20, 1919, in Atlantic City, New Jersey. The window was heavily draped around the sides with royal purple cloth, two beautiful silk American flags hung in folds in the background, while on the base were arranged on tufted old gold cloth eleven old Disston Hand Saws, each of



Remarkable Display of Disston Saws, Made by Henry Disston and Sons, Incorporated, Philadelphia, Pennsylvania.

which possesses a history of service, interesting and unequalled. Two of these saws were labeled 79 years old and are two of the first made by Henry Disston. Their age is determined by the manner in which they are branded—this being a somewhat crude stamp reading Henry Disston.

In the foreground were placed three Disston Victory Handsaws representing the acme of success in saw-making. On two of these saws the etching is illuminated—four flags of the United States reproduced in colors, and beneath these the Liberty Bell in bronze. These two saws were made up as special souvenirs of Victory, the handles of French White Oak, cut by the 29th Company, 10th Engineers (Forest) at Chenonceaux, Department of Indre et Loire, France. Screws of brass, nickel plated, made from shells used on the battlefield at Chateau Thierry.

Surmounting the whole display was a placard reading in bold letters the word Invincibles, the appropriateness of which is indicated by the history of the saws.

The old saw marked Number 19 was owned by Jacob Sees, who died during 1896 at the age of 75 years. In his young days he lived in the neighborhood of the Keystone Saw Works at Laurel Street, Philadelphia, Pennsylvania, and was acquainted with Henry Disston.

Regarding the saw Number 20, we quote from the letter of F. T. Traster of Creston, Ohio, written January 4th, 1905:

"I have a saw that was made in the Disston Saw Works the first month the factory was in operation—in 1840, purchased by the man who became my foster father. He brought it to Wayne County, Ohio, in 1842, on horseback. I am fifty-three years old, and I can remember the saw almost fifty years."

Peculiarly pathetic is the ending of a note received concerning another old Disston saw. The letter is dated May 1st, 1886, and reads: "I have used your saws for thirty-five years, and have the first one yet, only half inch wide at the point, but shall not use them much more, as I am 74 years old. Will quit soon."

Each of the other saws have seen long and active service, ranging from 40 years and up. Many hundreds of these old reliables have been offered to Henry Disston and Sons, while on the other hand numerous letters have been received calling attention to the old Disston Handsaws the writers possess, which have been handed down from generation to generation and could not be bought at any price, for they were highly valued as heirlooms.

### WINDOW DISPLAY COMPETITION IS PROPELLING STIMULUS FOR GOOD WINDOW EXHIBITS.

Action is not independent. Nothing is done without stimulus. The more interest there is in an activity the better it will be done. A boy does not climb the farmer's fence to get apples because the thought originated in his mind that apples might be good things to eat. The boy ate some apples before. While passing by the orchard the apples tempted him to get them. They were the stimulus to his action. The incentive to business is gain and honor. Window displays—a vital part of the retail business—are stimulated by the service they have given in increasing business. Dealers need not be told that the more fascinating a window arrangement is the more gainful are its effects. But there must be some stimulus to bring about the effective display. Some source of inspiration must exist. The propelling force of gainful results in business becomes somewhat monotonous. AMERICAN ARTISAN AND HARDWARE RECORD now steps into the field and brings to the hardware retailer the stimulus to exhibit his wares in an arrangement that calls forth his best efforts. The Window Display Competition conducted by this paper has proved an incentive to profitable displays. Besides the undoubted increase in business which results from the displays created under the stimulus of the competition arranged by AMERICAN ARTISAN AND HARDWARE RECORD, there is no reason why you should not win the prize. Clerks in hardware stores are

eligible to enter the contest. Take a picture of one of the displays created under the stimulus of the Window Display Competition and enter it. We give herewith the plain rules governing the contest:

#### Award of Prizes.

The prizes will be awarded as follows:

First prize, \$50.00 in cash, for the best photograph and description received of window display of hardware or kindred lines;

Second prize, \$25.00 in cash, for the photograph and description second in merit;

Third prize, \$15.00 in cash, for the photograph and description third in order of excellence;

Fourth prize, \$10.00 in cash, for the photograph and description fourth in degree of worthiness.

#### Conditions of Competition.

The conditions of the competition are as follows:

The photograph must be accompanied by descriptions of how the window displays were arranged and the materials used. The description is important and hence should be adequate. These photographs and descriptions may be sent by mail or express, charges prepaid, and must reach this office not later than February 2, 1920. Address all photographs and descriptions to AMERICAN ARTISAN AND HARDWARE RECORD Window Display Competition, 620 South Michigan Avenue, Chicago, Illinois.

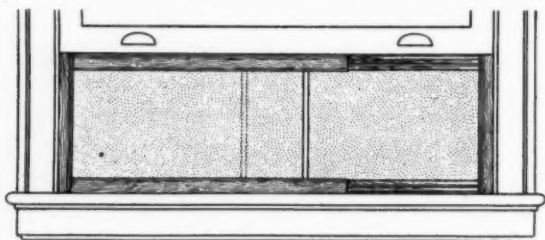
Each photograph and description must be signed by a fictitious name or device and the same name or device must be put in a sealed envelope containing the real name and address of the contestant. This sealed envelope is to be enclosed with the photograph. Contestants are permitted to enter as many photographs of displays as they please.

A Competition Committee of three will be appointed. One of them will be an expert window dresser and one an experienced hardware man. This Committee will pass upon the merits of all photographs and descriptions received, without knowing the names or addresses of the senders, and will decide the winners of the Competition.

AMERICAN ARTISAN AND HARDWARE RECORD reserves the right to publish all photographs and descriptions submitted.

#### KEEPS OUT DRAFTS, RAIN AND SNOW.

Windows are constructed to be opened beside the purpose of admitting light. However, man does not



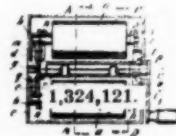
Continental Sanitary Cloth Window Ventilator, Made by The Continental Company, Detroit, Michigan.

make the weather. When it is desirable to open the windows, rain, sleet, dusty winds, etc., may not permit. With the Continental Sanitary Cloth Window Ventilator, depicted herewith, made by The Continental Company, Detroit, Michigan, the inclemencies of

weather can not deter the opening of a window. These ventilators have hardwood frames, mission oak finish. The mesh entering into the manufacture of the Continental Sanitary Cloth Window Ventilator is treated by a special process. Being fine meshed, equipped with buff-colored cotton cloth, this ventilator filters the air which comes through it. According to the manufacturers, wherever the Continental Sanitary Cloth Window Ventilators have been put on display they have met with ready sales. They also state that now is the most propitious season for introducing these products. For detailed information, dealers should write to The Continental Company, Detroit, Michigan.

#### PATENTS DEVICE FOR SHARPENING SAFETY RAZOR BLADES.

Under number 1,324,121, United States patent rights have been granted to Gerhardt Sigvert Rehling Kampmann, Tegal, Java, Dutch East Indies, for a device for sharpening safety razor blades described herewith:



A device of the character described including a casing, a stationary gear carried concentrically of one end wall of the casing, a frame journaled in the casing and concentric of the gear, a blade holder having its axis rotatably mounted centrally of the end wall of the casing and concentric of the gear and frame, sharpening rolls provided with trunnions journaled in the frame, planetary pinions carried by the trunnions of the rolls and contacting with the stationary gear, means for rotating the blade holder and cooperative engaging means on the axis of the holder and on the frame and adapted to effect a connection between the holder and the frame for rotating the frame from the holder when the holder is rotated.

#### AN ACCUMULATION OF SURPLUS STOCK SHOULD BE DISCOURAGED.

Observation shows that almost every business in the country has a certain amount of saleable merchandise that has accumulated from time to time (and it is saleable because it can be sold if the proper attention is given it). Such stocks have been stacked up in bins or dark corners, and have become known around the store as dead stock, which term is proper if it is allowed to remain where it has been stored. Stores would be much better off if there were no dark corners where slow-moving merchandise might accumulate. But since there are always these places for the goods that become an "eye sore," then it reverts back to the point of keeping such places clean of accumulations.

After much investigation and the promulgating of many different plans, it has been found that to hold a regular clearance once a week is the best way.

Dealers can well afford to sell these goods at greatly reduced prices in order to clean up these old stocks and to keep their merchandise moving. Such sales they will soon find will gradually draw large crowds into their stores, and will be of enormous advertising value.



The merchant can also incorporate in these sales some new items that he wishes to introduce to the trade, and he will soon be surprised at the results that can be obtained in this manner. Of course, such items as are new and regular stock should be priced regular. Hardware merchants should make it a habit at all times to dispose of their surplus stock.

### STORE MOTTO DEVELOPS GOOD WILL.

It isn't often that the everyday retail merchant who is forced, mayhap, to write his advertisements in his odd moments, can hope to equal in his silent salesmanship the prominent national advertisers with their copy wizards, says Waldon Fawcett in the American Cutler. Nevertheless and notwithstanding, the retailers appear to be doing this very thing just now in furtherance of the latest business fad, the promulgation of sales slogans. Incidentally, the retail merchant is discovering in this selfsame hobby a new means to capitalize that intimacy of contact with customers wherein the ultimate distributor has always had a marked advantage over the manufacturer.

No pretense can be made that the proportion of merchants who have adopted "store mottoes," as they are termed, is comparable with the proportions of national advertisers who have flung out sales slogans in their quest for trade. As a matter of fact there is something suggestive of a stampede in the eagerness with which the producers of goods are casting about for "catch lines" that will stick in the minds of consumers and provoke purchase. Such is the scramble for slogans that steps have recently been taken to compile a directory of the phrases that have been adopted in order that no manufacturer need unwittingly poach upon another's preserves.

In what, then, if the manufacturers are so busy sloganizing, can the retailers as a class claim any advantage, since obviously the average merchant has no facilities to compare with those of the national advertiser when it comes to popularizing a neatly turned phrase? Simply in this, that, by and large, there is more justification for a store motto than there is in some instances for a national sales slogan. Doubtless every diligent reader of general advertising can call to mind selling slogans that seem to be "dragged in by the heels," as the saying is. But there is no such suggestion of superfluity about a well-chosen store motto. Its appearance on the merchant's stationery and advertising literature appears to be wholly logical if not actually necessary. Another advantage that markedly rests with the merchants as a class in contrast to the manufacturers arises from the policy of selection that has been followed, instinctively it would seem, in the choice of store mottoes. Most of the national sales slogans are descriptive of the products with which they are associated. In many instances the slogans are frankly encomiums with an advertising purpose. A goodly share of our representative store mottoes are, on the other hand, somewhat less obtrusive in their advertising functions. Or at least they speak for the store as an institution rather than for wares as an object of barter and sale. Thus they seem to hark back to the days of

dim tradition when every baronial family had its ancestral motto along with its coat of arms.

Given an opportunity to adopt a store motto that will confer dignity and distinction upon the establishment without sacrifice of advertising element, many progressive merchants have bestowed careful thought to the selection of these "handles" for their commercial names. The circumstance that the selection of a motto is presumably for the lifetime of the store counsels care and foresight. It is this long tenure of the store motto that restrains many a merchant from the inclusion in his motto of any slang or near-slang that might lose its meaning with the passing years, and from the adoption of a merely "smart" saying that would lose its quality with the lapse of time.

Specialists on the choice of store mottoes are wont to caution their merchant-clients to make their slogans fit the respective stores rather than to have these phrases merely rank as clever catch lines or apt alliterations. Indeed, it is emphasized that the store motto constitutes an ideal vehicle for exemplifying store policy and sounding the keynote of store individuality. Albeit, the specialists are wont to caution retailers not to allow their enthusiasm for convincing store mottoes to run away with them to the extent of influencing them to adopt mottoes that may be hard to "live up to." For example, it has been cited that the business man who puts forth the challenge "I never disappoint" has a store motto that, if not faithfully justified, may turn out to be a boomerang.

There are several separate and distinct classes, styles or types of store mottoes, and it well behooves the retailer who is moved to mottoize to ponder carefully what class of slogan he will select. More likely than not the merchant's business policy or merchandizing principles will serve automatically to eliminate from consideration some of the candidates. For example, the retailer who is building his business on a strictly cash basis would have no use for such a motto as "Have It Charged If You Wish," and no more would the credit house find appropriate "We Reward Your Cash With Concessions in Prices."

A popular class of store mottoes and one with obviously strong appeal is that made up of slogans that extoll "service," using the word in its broadest mercantile sense. It is manifestly a potent talking point in lines such as hardware, etc., where the articles distributed are, to a greater or less extent, mechanical in character and consequently may require demonstration and adjustment or instruction in use in order to obtain the best results. The very important equation of service in the securance of spare parts or repair parts is also the inspiration of some of the slogans in this group, for example: "What You Want, When You Want It."

"The Store of Greater Service" is the motto used with gratifying results by one store in the South. Another proclaims "Life Time Hardware"—a little extravagant perhaps, but a boastfulness that the buying public will condone in the face of value received. The cutlery retailer in adopting a motto of this type is but following distinguished example in the manufacturing field, which forms his source of supply. For

example, there is the well known slogan of the Geneva Cutlery Company: "Genco Razors Must Make Good or We Will," and the E. C. Simmons trade-marked philosophy: "The recollection of Quality remains long after the Price is forgotten."

Closely akin to the motto that bespeaks "service" as the first consideration is the slogan which, inferentially if not in down-right fashion, guarantees the satisfaction of the customer. "Satisfaction First," and "Your Money Back If You Want It," are specimens of this "school" of sloganizing. Here, as in the environment above mentioned the sloganizing merchant is in good company as regards manufacturers. North Brothers Manufacturing Company have reiterated the line "Yankee Tools Make Better Mechanics."

The economy appeal is, naturally, with the stores that stress price competition a lure that seeks expression in store mottoes. Thus we have, for example, "The Store That Saves You Money," and "Where Your Dollars Count Most." In some instances the shrewd merchant will undertake to drive home the point that concession in price involves no sacrifice of quality, and thus we have such expressions as "High Grade—Not High Priced." In some instances merchants have capitalized, via slogan, the prestige that they enjoy through long establishment in a community, through fortunate location in a central or convenient shopping district or by reason of popularity with the mass of the people.

Thus the writer knows of one store that has made subtle suggestion with "The Busy Corner," and another that has expressed the same formula in "Follow the Crowds." Such mottoes are based on the psychology that the average purchaser will prefer to purchase where others are purchasing, supposedly with good reason.

#### ANNOUNCES ENORMOUS DEMAND.

When the demand for a commodity is big, the dealer who wants to gain a large share of the business must be alert, for his more attentive brother retailer will try



"Iron Horse" Sink Garbage Can, Made by the Rochester Can Company, Rochester, New York.

his best to direct the demand to his store. According to the Rochester Can Company, Rochester, New York, manufacturers of the "Iron Horse" Sink Garbage Can, depicted herewith, there is a steady and enormous demand at the present time for this product.

Being sanitary and odorless, it forms a very useful article for the home. All the surplus garbage can be drained off before being put into a larger receptacle. The "Iron Horse" Sink Garbage Can does away with water dripping across the floor while the can is being carried to the outside garbage can. In the summer time the cover on the can keeps the flies out. This can is strongly made. Galvanized iron is used in its manufacture. A wire hoop curled over the top reinforces that part of the can. Dealers desiring detailed information pertaining to the "Iron Horse" Sink Garbage Can should write to the Rochester Can Company, Rochester, New York.

#### TAKE CARE OF BUSINESS DOCUMENTS.

Do not throw your valuable business documents around as if they were scraps of paper. They may not be of pressing need. However, the time will come when you will earnestly wish that you had taken better care of them. It is always best to have a safe place for the keeping of business papers. Even though the value of a paper is not apparent, if there is a slight opportunity of having some day to present it for inspection, be sure to preserve it.

#### ECONOMIZES ON NAIL STOCK.

"A place for everything and everything in its place," typifies the basic principle of all modern system. The



"Eclipse" Nail Bin, Made by The Wellston Manufacturing Company, Wellston, Ohio.

constant abolition of waste and lost motion is the aim of efficiency engineers in the world's industries. The retailer, to keep pace with his competitor must keep abreast of progress and efficiency. Illustrated herewith is the "Eclipse" Nail Bin, manufactured by The Wellston Manufacturing Company, Wellston, Ohio, a device that has proved its economical value to hardware dealers, declare the makers. It is designed throughout to eliminate waste and to guarantee efficiency in the handling of nails. The stem is made of heavy steel tubing and the base is of heavy cast iron. The walls are made of a carefully graded and selected steel. These bins can be turned at will. The working parts are perfectly fitted and insure facile operation. As can be seen from the illustration, a handy holder is provided for the accommodation of a scale. Descriptive literature and prices on these devices will be sent upon inquiry to the Wellston Manufacturing Company, Wellston, Ohio.

Laziness is often at the bottom of ignorance. When you see a merchant who does not read his trade paper, look out for the sheriff. He is coming as sure as a gun's iron, and when he comes he will not spare.



## SUCCESS IN BUSINESS DEPENDS UPON PROPER TRAINING OF MEN.

Whether an employer conducts a hardware store with a small staff of clerks or a tin shop with a few mechanics, his success in business depends upon the proper training of men. A new science has been developed in this field—the study of human engineering, applicable alike to immense steel plants and retail stores. Some notion of what it teaches may be gleaned from the following extracts from a paper presented by Charles E. Knoeppel at a meeting of the American Society of Mechanical Engineers in New York City:

It has been found that the man with the highest type of initiative is the one who sees things to be done, without being informed, and who then delegates to others the task of doing the work. The man with the next highest type of initiative is the one who sees things to be done without being informed and who then does the work himself. The next in order is the man who sees things to be done, after being informed, but who does the work without being told.

In other words, a man's power in business is measured by the extent to which he induces efficiency in others and at the same time gives the least possible attention to duties other than his own. This is a good business law because while there is a limit to the amount of detail a man can handle, there, is however, practically no limit to the amount of supervision he can exercise, since in supervising he is merely guiding others.

No man knows what he can do until he has had a chance to demonstrate what is in him, and there is no man who is not able to do more than he believes himself capable of. Time and time again a man of only average ability who was a "leaner," has developed unusual ability when given definite responsibility and the necessary authority whereby to get results, with the understanding that if he failed he should make way for someone who could "make good."

That a well-designed organization can function properly it must be administered. The days are past when the accountant would consider a cost system a cure-all without considering men and their relationships. No longer will the efficiency expert be able to get results by introducing planning or time-study methods before he has analyzed personnel and prescribed for organization ills. The time is past for the engineer to design mechanical improvements before devoting proper attention to the subject of man power. In the administration of industry, the executive of the future, whether he be accountant, engineer, or efficiency expert, will consider men from two angles: man as an individual; men in their relations to one another.

No man who attempts to do everything himself can be a master business builder; he must deputize authority among competent assistants. An executive should examine himself carefully and frankly decide what his business capacity really is. Then he should analyze his work, classify it, and in three columns, A, B, C, list the various duties, in the order of their importance. The "A" duties he should attend to himself, the "B" duties he should delegate to his immedi-

ate subordinates, and the "C" duties he should give over to those in less responsible positions. The results accomplished, as compared with the old plan, would be tremendous.

Nothing will so hamper a man as too constant supervision, designed to check him up minutely with respect to the details of his work, and if he is a real live, competent individual he will resent such a policy in time and seek employment where he can exercise his powers to the fullest. Further, men prove themselves worthy of responsibility only if they are given full authority in their particular spheres. To say that there is responsibility where there is not full authority, is to express a paradox.

The executive who disregards his immediate subordinates and deals directly with those immediately under these subordinates or with the workmen themselves, is unjust to the men whom he has placed in positions of authority.

When new people are brought into an organization, due allowance should be made for the change in relationships that is necessitated.

The executive should study men in order that he may be able to arouse in them the greatest possible amount of initiative. Carnegie adopted the right basis upon which to develop men. He did not care anything at all about a man who did not already look upon himself as a future partner in the business. Cultivate this ideal in your men, give them tasks that will demand all their reserve powers, and then watch them develop initiative.

The executive should give his workers every opportunity to make good and win their way to positions of responsibility. Many managers seem to be satisfied with nothing less than the polished cut diamond, and have a hard time finding it, whereas if they would look for the uncut diamond "in the rough" they could find plenty of them. A certain rough-and-ready, hard-fisted manager who had the right idea, expressed it in these words: "My business is not to find men; it's to make 'em."

The manager of the future will not be a manager at all, at least not according to the present interpretation of the term; he will be a co-ordinator and a guide. Primarily, instead of doing, he will decide; rather than counsel, he will seek advice; instead of achieving, he will endeavor to inspire others to achieve. He will not spend his time on details, he will delegate them to others. He will not be a driver, he will lead. Instead of looking at things from the standpoint of dollars, he will consider them from the standpoint of sense. In other words, instead of always asking, "How many dollars can I make?" he will ask the more important question first of all, "How many men can I make?"

What is a man? Is he just bone and muscle, so much beef to be used for the strength that is in him, or is there something in his make-up of vastly greater value than mere brute strength? The Almighty endowed us all most abundantly for the battle of life. If we do not use our endowments to the fullest, we have no one to blame but ourselves for our lack of success. If, however, we make no attempt to develop endowments in others, we are neglecting both a priv-

ilege and a duty. These endowments are concentration, reason, interest, judgment, energy, imagination, attention, memory, and others, and every normal man possesses them all to some extent. On their proper use depends more than we realize, and right here is where industrialism has failed to consider latent possibilities.

No matter how we study men, we cannot get away from the conclusion that the underlying motive which influences most of us is an instinctive desire for gain. We are all creatures of aspiration, and it makes absolutely no difference whether the person is the man who owns the large industrial enterprise, or the man who works by the day. Both want to make as much as they possibly can. To mutualize the interests so that each can realize his desire, is no easy task. It is not an impossible task, however, and in its successful performance both capital and labor will receive material benefit. Both lose out when either ignores the interests of the other.

In conclusion: What is our responsibility? The cost of living is an important issue. Demand increases with the increase in population, and it is an established fact that supply has not been increasing with this increase in population. To get supply enough to meet the demands and to balance with cost of living, will not be such an absorbing problem. There are two possible solutions: There must be more producers; there must be a greater amount supplied by those now producing.

The first solution is practicable only if labor is allowed shorter hours, better working conditions, and a remuneration which will attract the worker. The second can be employed by eliminating wastes, standardizing conditions, bringing about proper co-ordination, setting fair tasks, and allowing men to earn an amount which will compensate them for their skill and their cooperation.

#### MANUFACTURES LINE OF WIRE GOODS.

A line of wire goods of national prestige is produced by the American Steel and Wire Company, Chicago, Illinois. The large facilities of this company enable it to supply wants for wire goods regardless of the size of order submitted. Wire to meet almost every use for which it can be utilized can be furnished by the American Steel and Wire Company. All goods are said to be uniform. When orders are repeated for a certain product uniformity is assured. Among other kinds of wire, they manufacture electrical, rope, airplane, piano, pipe organ, flat wire (strip steel) concrete reinforcement, springs, netting, wire fences, steel posts, wire wheels, auto-towing cables, etc. Illustrated books describing the use of wire will be sent upon inquiry to the American Steel and Wire Company, Chicago, Illinois.

#### COURTEOUS TREATMENT IS ASSET.

The retail store attracts trade by the courteous treatment extended to its customers by well-trained clerks. Many of the large stores maintain schools of salesmanship to increase the personal efficiency of its sales force.

#### OBITUARY.

##### William H. Hart.

The last chapter of a useful and meritorious life came to an end Saturday, December 13, 1919, with the passing away of William H. Hart, Chairman of the Board of Directors of the Stanley Works, New Britain, Connecticut, at his home in that city. He had lived to be eighty-four years of age and continued active in business affairs until a year ago. As the founder of the Stanley Works, he devoted his talents, energy and enthusiasm to the building up of the organization. Being a keen judge of values in men and commodities, he maintained a high standard of quality both in the personnel and in the products of the Stanley Works. He originated the Stanley Rule and Level Company of New Britain, Connecticut, and for fifty years was the active head of that business. His acquaintance with the men of the hardware trade was extensive; and he formed many warm friendships during his long period of connection with the manufacturing side of the hardware industry. He was noted for great executive ability, and was always prompt to recognize and encourage merit in other men. He was buried Monday afternoon, December 15, 1919, in New Britain, Connecticut.

##### Louis J. Mueller, Sr.

At the advanced age of eighty-two years, Louis J. Mueller, Sr., President of the L. J. Mueller Furnace Company, Milwaukee, Wisconsin, died at his home in that city, 284 Greenbush Street, Tuesday, December 16, 1919. He was born in New York City in 1837. After leaving school he learned the tinner's trade. He moved to Milwaukee in 1855, and engaged in business there on Reed Street. Later on, the business was enlarged to include the manufacture of warm air heaters. He was a member of the Old Settlers' Club, and the Association of Commerce. He is survived by his widow and four sons, Paul, Arthur, Louis, Jr., and G. C. Mueller.

#### OPPORTUNITIES FOR FOREIGN TRADE PRESENTED BY BUREAU OF FOREIGN AND DOMESTIC COMMERCE.

The Bureau of Foreign and Domestic Commerce through its Special Agents, Consular Officers and Commercial Attachés is receiving information of opportunities to sell hardware and kindred lines in several foreign countries. Names and locations will be supplied on request to the Bureau in Washington or its District Offices. Such requests should be made on separate sheets for each opportunity, stating the number as given herewith:

31476.—An American in Czechoslovakia, who has organized a cooperative association for the purpose of purchasing agricultural implements, etc., from American firms, desires to receive catalogues and information.

31479.—A commercial agent in Dutch Guiana desires to represent American firms for the sale of general merchandise. Reference.

31482.—Representation is desired by a man in Belgium for the sale of zinc products. Correspondence and catalogues should be in French.

31502.—A commercial corporation in Argentina desires to represent firms for the sale in that country of wire, as follows: Galvanized, barbed, nail, drawing, black varnished, plain, and annealed. References.



31508.—A firm of merchants in Ireland desires to purchase building materials, hardware, tools, paints, oils, etc. Quotations should be given c. i. f. Liverpool or Dublin. References.

31512.—A concern in Germany, formerly engaged as commission agents in buying and selling in the Far East, wishes to represent American firms in Germany. References.

31513.—A commercial representative in Spain desires to secure agency for the sale in that country of automobile accessories. Correspondence should be in Spanish. Reference.

31488.—The representative of a company in Australia is at the present time in the United States for the purpose of buying furniture materials, such as upholstering supplies, motor-car trimmings, general and builders' hardware, cabinet makers' supplies and desires to secure agencies from manufacturers for the sale of American goods in Australia. Reference.

31490.—A firm of import and export merchants in India desire to secure agencies for the sale of metals, hardware, cutlery, paints and varnishes, etc. Quotations and samples are requested. References.

31520.—A purchasing agent in the United States for a British importing house desires to secure an agency and purchase, for sale in Czechoslovakia, tires for automobiles and bicycles; for sale in Holland, Spain, and Italy, automobiles, tires, and accessories. Quotations should be given f. o. b. New York. References.

31523.—An import and export firm in Bulgaria desires to secure the exclusive agency for the sale of stoves, coal and oil burners, etc. References.

31524.—A firm in Belgium having a strong clientele, with whom they will be able to place immediately large orders for hardware, desires to receive a consignment of hardware in general for furniture, locks, hinges, handles, etc. Quotations should be given c. i. f. Antwerp. Terms, consignment against bank guaranty. Reference.

31528.—An agency is desired by a man in Switzerland for the sale of automobile tires, and exchange pieces. Correspondence should be in French or German. Reference.

31537.—A dealer in Spain desires to purchase 350 tons of best quality of black sheet metal ready for manufacture of tin plate. Quotations should be given c. i. f. Spanish port. Payment, cash against documents: Correspondence may be in English. References.

31541.—A general agency firm in Palestine desires to secure agencies for the sale of special cooking machines, and window and door hardware, and supplies. Catalogues and quotations are requested. References.

31542.—A firm of importers and general commission merchants in India desires to represent manufacturers of hardware, galvanized and iron pipes, and general sundries. Reference.

## COMING CONVENTIONS.

Sheet Metal Contractors' Association of Pennsylvania, Penn-Harris Hotel, Harrisburg, January 8, 1920. First convention for purposes of forming organization. Edwin L. Seabrook, ex-officio Secretary of preliminary organization, 261 South Fourth Street, Philadelphia, Pennsylvania.

Pacific Northwest Hardware and Implement Association, Davenport Hotel, Spokane, Washington, January 20, 21, 22 and 23, 1920. E. E. Lucas, Secretary, Hutton Building, Spokane, Washington.

American Washing Machine Manufacturers' Association, Hotel Sherman, Chicago, Illinois, January 21 and 22, 1920. Raymond Marsh, Secretary, 10 South La Salle Street, Chicago, Illinois.

The American Society of Heating and Ventilating Engineers, New York City, January 27, 28, and 29, 1920. C. W. Obert, Secretary, 29 West 39th Street, New York City.

Indiana Retail Hardware Association, Athenaeum Hall, Indianapolis, Indiana, January 27, 28, 29, and 30, 1920. Exhibit in same hall. G. F. Sheely, Secretary, Argos, Indiana.

Oregon Retail Hardware and Implement Dealers' Association, Imperial Hotel, Portland, Oregon, January 27, 28, 29 and 30, 1920. E. E. Lucas, Secretary, Hutton Building, Spokane, Washington.

Kentucky Hardware and Implement Dealers' Association, the Armory, Louisville, Kentucky, January 27, 28, 29 and 30, 1920. Hardware, Implement, and Vehicle exhibit. J. M. Stone, Secretary, Sturgis, Kentucky.

Nebraska Retail Hardware Association, Lincoln, Nebraska, February 3, 4, 5, 6, 1920. Nathan Roberts, Secretary, Lincoln, Nebraska.

Wisconsin Retail Hardware Association, Milwaukee, Wisconsin, February 4, 5, and 6, 1920. P. J. Jacobs, Secretary, Stevens Point, Wisconsin.

Iowa Retail Hardware Association, Auditorium, Des Moines, Iowa, February 10, 11, 12 and 13, 1920. A. R. Sale, Secretary, Mason City, Iowa.

Michigan Retail Hardware Association, Hotel Pantlind, Grand Rapids, Michigan, February 10, 11, 12 and 13, 1920. Exhibit in Furniture Exhibition Building. Arthur J. Scott, Secretary, Marine City, Michigan.

Pennsylvania and Atlantic Seaboard Hardware Association, Bellevue Stratford Hotel, Philadelphia, Pennsylvania, February 10, 11, 12, and 13, 1920. Exhibition in Philadelphia Commercial Museum. Sharon E. Jones, Secretary, 1314 Fulton Building, Pittsburgh, Pennsylvania.

North Dakota Retail Hardware Association, Grand Forks, North Dakota, February 11, 12 and 13, 1920. Hardware exhibit in Grand Forks Municipal Auditorium. C. N. Barnes, Secretary, Grand Forks, North Dakota.

Illinois Retail Hardware Association, Hotel Sherman, Chicago, Illinois, February 17, 18, and 19, 1920. Exhibit in connection. Leon D. Nish, Secretary, Elgin, Illinois.

Minnesota Retail Hardware Association, St. Paul Auditorium, St. Paul, Minnesota, February 17, 18, 19 and 20, 1920. H. O. Roberts, Secretary, 1030 Metropolitan Life Building, Minneapolis, Minnesota.

New York State Retail Hardware Association, Onondaga Hotel, Syracuse, New York, February 17, 18, 19 and 20, 1920. Exhibition in State Armory. John B. Foley, Secretary, 607 City Bank Building, New York City.

Missouri Retail Hardware Association, St. Joseph Auditorium, St. Joseph, Missouri, February 17, 18, and 19, 1920. F. X. Becherer, Secretary, 5136 North Broadway, St. Louis, Missouri.

New England Hardware Dealers' Association, Mechanics' Building, Boston, Massachusetts, February 23, 24, and 25, 1920. George A. Fiel, Secretary, 10 High Street, Boston, Massachusetts.

South Dakota Retail Hardware Association, Sioux Falls, South Dakota, February 24, 25, 26, and 27, 1920. Exhibit in connection. H. O. Roberts, Secretary, Metropolitan Life Building, Minneapolis, Minnesota.

Ohio Hardware Association, Hotel Gibson, Cincinnati, Ohio, February 24, 25, 26 and 27, 1920. James B. Carson, Secretary, Dayton, Ohio.

Michigan Sheet Metal Contractors' Association, Saginaw, Michigan, March 2, 3, and 4, 1920. F. E. Ederle, Secretary, Grand Rapids, Michigan.

National Warm Air Heating and Ventilating Association, Cleveland Hotel, Cleveland, Ohio, April 21, 1920. Allen Williams, secretary, Columbia Building, Columbus, Ohio.

Stove Founders' National Defense Association, Boston, Massachusetts, May 11, 1920. R. W. Sloan, Secretary, 826 Connell Building, Scranton, Pennsylvania.

Old Guard Southern Hardware Salesmen's Association, Marlborough-Blenheim Hotel, Atlantic City, New Jersey, May 12, 1920. R. P. Boyd, Secretary, Knoxville, Tennessee.

Southern Hardware Jobbers' Association, Marlborough-Blenheim Hotel, Atlantic City, New Jersey, May 11, 12, 13, and 14, 1920. John Donnan, Secretary, Richmond, Virginia.

American Hardware Manufacturers' Association, Marlborough-Blenheim Hotel, Atlantic City, New Jersey, May 11, 12, 13, and 14, 1920. F. D. Mitchell, Secretary, 4106 Woolworth Building, New York City.

National Association of Stove Manufacturers, Boston, Massachusetts, May 12 and 13, 1920. Robert S. Wood, Secretary, National State Bank Building, Troy, New York.

National Association of Sheet Metal Contractors, Peoria, Illinois, June 8, 9 and 10, 1920. Edwin L. Seabrook, Secretary, 261 South Fourth Street, Philadelphia, Pennsylvania.

## RETAIL HARDWARE DOINGS.

### Kansas.

S. C. Block has sold his hardware business at Winfield to the Henricks Hardware Company.

R. L. Hall hardware and lumber business at Wellsford plans to discontinue business.

### Minnesota.

J. G. Noseth has purchased the interest of Mr. Larson in the hardware business of Hertzburg and Larson at Marietta.

P. A. Sanders has opened a hardware store at Ogilvie.

J. P. Volser has opened a hardware business at Ashland.

### Nebraska.

S. E. Lewis has sold his hardware store at Elsie to McGaham and Jamison.

L. E. Waid and Sons have sold their hardware business at Kennard to F. O. Farchild.

Wingert Brothers at Wood River will retire from the hardware business.

### North Dakota.

J. P. Nelson has sold his hardware store at Regent to the Meon Hardware Company of McLaughlin.

### Oklahoma.

J. S. Pfaff and Son have sold their hardware store at Dustin to Park Brothers.

### South Dakota.

J. Meier has sold his hardware business at Chancellor to W. H. Korte.

### Washington.

Thompson and Son's hardware business at Harrington has been purchased by W. H. Richardson and H. I. Monks.

# ADVERTISING CRITICISM AND COMMENT

*Helpful Hints for the Advertisement Writer*

A slogan helps business. It serves to sharpen the individuality of an establishment in the minds of the

people. To accomplish this, however, the slogan must have brevity. It must convey an idea of interest to the purchaser. It must be easy to remember. These requirements are met in the slogan, "Save The Difference," which is used by Davis, The Hardware Man, in the advertisement herewith reproduced from the *Boston Globe*, Boston, Massachusetts. A perusal of the copy gives plenty of proof that the slogan is right. A comparison of the prices quoted therein with those ordinarily charged for the same commodities reveals a distinct difference in favor of the customer who patronizes Davis, The Hardware Man. The advertisement is well designed. The illustrations are adequate. Enough white space is allowed in the layout to give the needful contrast. The boldness

**834<sup>th</sup> WEEKLY SALE**  
"SAVE THE DIFFERENCE"



**A. C. CHAMPION SPARK PLUG**

Sizes  
1/2-in. **57c**  
7/8-in.

Parcel Post 5c Extra

---

**Powder Fire Extinguishers**

 **3 for \$1**

Can be used for Auto, Home, Garage or Office  
Parcel Post 15c Extra

---



**Galvanized Rotary Ash Sifter**

**\$3.89**

**3 Ribbed Heavy Galvanized Ash Can**

**\$4.50**

Combination Price, **\$8.00**

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**WINDOW FELT**

Felt Weather Strip, 1-in. wide, 10 ft. to a package. **3 Packages 25c**

Parcel Post 5c Extra

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**Open Saturday Evenings Until 9:30**

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**Davis**  
**THE HARDWARE MAN**  
COR. PORTLAND AND SUDBURY ST.

with which the prices stand out from the text is commendable. Whatever theorists may say to the contrary, people are keenly interested in prices of the things which they buy. From an academic point of view, it helps fill pages of advertising journals to say that quality is the first consideration with the purchaser. But in these days of the high cost of living thrifty customers are as deeply concerned in the dollars and cents phase of commodities as they were in the years when eggs were selling at ten cents a

dozen.

The descriptions of the articles shown in this advertisement are sufficient for the purpose. The objection might be urged that more details could be given. On the other hand, however, that would necessitate the use of smaller type. Thus legibility would be sacrificed without sufficient gain in clearness to warrant the sacrifice. Of course, fault can be found in anything. Perfection is the unattainable. Indeed, grave doubts exist as to the practical desirability of perfection. Boston is a city with many small towns within easy reach. People come from beyond the city limits to do their shopping in Boston. Therefore, this advertisement would be improved by the addition of the name of the city Boston on a line beneath the street address.

\* \* \*

When a man has a great deal to say which must be said and has only an extremely brief time in which to say it, he wastes no words in rhetorical flourishes. In the language of the shops, he gets down to brass tacks at once. Having a limited space in which to set

forth his message, A. R. Harris makes the most of it in the advertisement reproduced herewith from the *Chicago Telegram*. By judicious use of display lines, he contrives to give enough contrast

I Handle Four Distinct Makes of  
**PIPELESS FURNACES**

**THE CALORIC THE PENINSULAR**  
**THE GLOBE and THE HOMER**

Each guaranteed for five years and guaranteed to heat your house satisfactorily to you on one ton of soft coal per room for one year. In other words,

**WE CUT YOUR COAL BILL ONE-THIRD TO ONE-HALF**

If interested phone me or drop me a card.

**A. R. HARRIS**  
13328 CARONDELET AVENUE  
Desk D. Phone: Hegewisch 0860  
Nearly 600 in use in the Calumet District  
Sold on Terms

to his text to arrest the attention of the reader. The four distinct makes of the pipeless warm air heaters which he advertises are of known quality. The guarantee which he gives in this advertisement is certain to stimulate inquiry and lead to substantial business. For a small advertisement this is well worded and designed.

\* \* \*

## ADVERTISING IS COMMON SENSE.

Advertising is not all a matter of technicalities. A good deal of it is just plain, common sense. It amounts to a sales talk in print. Unlike the spoken word, it must be short and snappy. But it must contain all the force of a face to face sales talk. There are advertisers who, in order to give their advertisements the characteristics of a personal sales talk, place their photograph in all their advertising copy. This is not desirable nor necessary. Well written copy can accomplish all of this. Be plain, explicit, direct.



## HEATING AND VENTILATING

### A. K. KIMMEL RETIRES FROM THE YOUNGSTOWN FURNACE COMPANY.

In a letter to his friends and to the patrons of the Youngstown Furnace Company, Youngstown, Ohio, A. K. Kimmel, until recently president of that company, announces his retirement from the business. He writes:

"I take this means of acquainting you with the fact that I have transferred my interests in the Youngstown Furnace Company to the Victor Stove Company of the neighboring city of Salem, Ohio, who will con-

will ever be dear to me, and my hope is that they may be renewed from time to time and that some day we may again have business dealings that will still further cement them and establish more firmly than ever the mutual confidence of the past."

It is the intention of Mr. Kimmel and his wife to go to California early in January of the coming year. He has earned a long vacation from the cares of business. At the age of nineteen years he began as a tinner's apprentice in Hubbard, Ohio. That was thirty-eight years ago. Both as a traveling salesman and as an executive he has been closely connected with the warm air heater industry ever since that time. He acquired a reputation for fair dealing, courtesy and sound judgment which won friends for him in every walk of life.

The new managers of the Youngstown Furnace Company are: C. E. SWEENEY, president; P. B. SCHAUWEKER, vice-president; and W. W. BROWN, secretary and treasurer. The assistant in the office will be G. N. AULT. It is the purpose of these officers to continue the policy of best service, craftsmanship, and material which Mr. Kimmel so successfully carried out during his presidency of the company.

### ANNOUNCES REDUCTION IN PRICES OF CALORIC WARM AIR HEATERS.

While prices in all lines of business have shown an upward tendency, the Monitor Stove Company, of Cincinnati, Ohio, announces a substantial reduction in dealer prices of Caloric Warm Air Heaters for 1920. The success of the Caloric Pipeless Warm Air Heaters has been so remarkable from the very start when it was introduced ten years ago that practically the entire output of the Monitor Stove Company is now devoted to the manufacture of this specialty.

In spite of higher costs of labor and materials than ever before in the history of the Company, The Monitor Stove Company has been able, by marketing a quality product through aggressive advertising and selling methods, to build its business to the point where quantity production has enabled it to reduce prices. It is one of the largest advertisers in the warm air heater business, and the Company expects its sales for 1920 to show a phenomenal increase over the sales of the present year.

### MIDLAND CLUB WILL HOLD MEETING.

Matters concerning the business outlook for the coming year will form the chief topic for discussion at the meeting of the Midland Club, Saturday, December 20, 1919, at the Hotel Sherman, Chicago, Illinois. The warm air heater manufacturers, who constitute the membership of the Midland Club, are unanimous in declaring that its meetings are a prolific



A. K. Kimmel, Retiring President of Youngstown Furnace Company, Youngstown, Ohio.

tinue the business and with whom I hope and am sure you will find as pleasant relations in the future as it has been my endeavor to maintain in the past.

"The Victor Stove Company is an old established concern with a wide reputation for honorable business methods and a product of high grade that has found special favor with customers the country over, a guarantee of service and satisfaction you will appreciate.

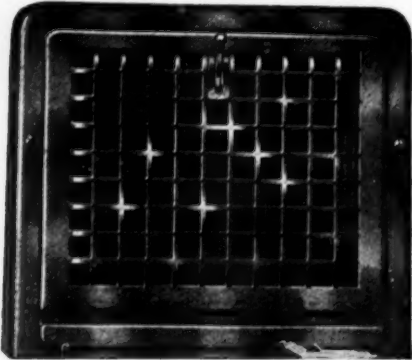
"You have my best wishes for continued success in your line and assurance of my lasting appreciation of the pleasant business relations we have sustained in the years of my activities as head of the Youngstown Furnace Company, in which capacity I can safely say no effort was spared to please you with the best service and value possible under conditions, which, as you know from experience, have been unusual the last few years.

"The friendships we have cultivated in these years

source of inspiration and suggestion to them in the development of their business. The principle of co-operation which guides the deliberations of the Midland Club is put into practice by its members with results highly gratifying from every point of view.

#### REGISTERS WILL FIT THE SAME BOXES.

The deflector on the Auer Baseboard Grill Register, depicted herewith, manufactured by The Auer Register Company, 403 Long Avenue, Cleveland, Ohio, is said to be capable of perfect adjustment. It is embossed to make it firm and tight fitting.



Auer Baseboard Grill Register, Made by The Auer Register Company, Cleveland, Ohio.

The frames of the Auer Baseboard Grill Registers have a deep back. The back of the registers telescopes into the register box making a tightly fitting connection. To fasten this register to the wall, two round head screws are employed. The screws are furnished by the manufacturers with each register. The screws are turned into the studs. The makers of the Auer Baseboard Grill Register claim that this is the only method of fastening by which the register can be drawn tightly and securely to the wall. The Auer Steel and Lattice Steel Registers fit in the same boxes. They also fit the boxes of several other makes of registers. In the interesting catalogue issued by The Auer Register Company, their complete line of registers is described. A booklet, entitled "The Register Book Number 20," is in the course of preparation and will be ready for distribution in January, 1920. Write to The Auer Register Company, 403 Long Avenue, Cleveland, Ohio, for their catalogue and a copy of the booklet to be issued.

#### USES QUESTION AND ANSWER STYLE IN INTERESTING BOOK ON WARM AIR HEATING AND VENTILATION.

Questioning is the best means of gaining knowledge. In the process of thought, whether cognizant of it or not, the mind questions. Why not apply the natural method of reasoning to the problems of warm air heating? Charles L. Hubbard uses the interrogatory method of discourse in his book, "*The Ventilation Hand Book*." In his questions and answers thereto on warm air heating he says, among other things:

"What are the advantages of warm air heating?"

"The lower cost of installation as compared with steam and hot water, simplicity of operation, freedom from repairs, no danger of freezing in unoccupied rooms or when the building is closed, a supply of fresh air for ventilating purposes, ability to regulate the quantity of heat, thus preventing overheating in

mild weather, and the short time required for warming up a building in the morning.

"How many pounds of coal are commonly burned per square foot of grate surface per hour in the average warm air heater?"

"This will vary a good deal with the chimney, the size of warm air heater and the care used in firing. Under ordinary conditions it may be taken from three to four pounds, in the case of dwelling houses, the higher figure being easily obtained in the coldest weather with reasonable care in firing. This also means that  $7,200 \times 4 = 28,800$ , or in round numbers 30,000 heat units per square foot of grate per hour are available for warming purposes with the best type of warm air heater of good size. For small warm air heaters, fired at longer intervals, this will drop to 20,000 or 25,000 according to conditions.

"How is the required size of a warm air heater determined for warming a given house?"

"There are various methods employed for this purpose, some using the heat or thermal unit basis, others depending upon the cubic contents of the building, while still others are made up of a combination of the two.

"What is the 'thermal unit' method?"

"In this case the total heat loss from the building per hour in the coldest weather is first computed, and the result divided by the heat units utilized per square foot of grate."

Not all installers consider seriously the need for computing the best sized warm air heater for a dwelling. In most cases, incompetency will be found to be the cause of this neglect. There is only one remedy, that is, study. With the many good books on the subject of ventilation and warm air heating there is no necessity for the installer to remain in the dark concerning which proper methods of installation reflect on the industry as a whole—most markedly on the negligent individual.

#### INSURES COMPLETE COMBUSTION.

The combustion chamber in the Magee One-Pipe Warm Air Heater, depicted herewith, manufactured by the Magee Furnace Company, Incorporated, Boston, Massachusetts, rests on the fire pot and is high above the flames. Complete combustion of the coal gases is a consequence of this arrangement. The ash pit in the Magee One-Pipe warm air heater is square and deep. It is arranged to permit sufficient air space underneath the grates to prevent them from warping. The ashes need not be banked. They can easily and completely be removed. A carefully proportioned grate is installed in the Magee One-Pipe Warm Air Heater, state the manufacturers. It is simple and can be easily operated. Durably constructed, it is heat resisting and will last under conditions that would wear out an inferior make, it is said. For wood burning a flat, perforated grate can be fur-



Magee One-Pipe Warm Air Heater, Made by the Magee Furnace Company, Incorporated, Boston, Massachusetts.



nished. This grate comes in two sections and can be fitted over the regular grate. Whenever it is not needed, removal is easy. Details concerning this line of warm air heaters can be obtained from the Magee Furnace Company, Incorporated, 38 Union Street, Botton, Massachusetts. Robert P. Burton, 20 West Lake Street, Chicago, Illinois, Branch.

### **BOOK OUTLINES THE HISTORY OF WARM AIR HEATERS.**

William Neubecker in his book *Progressive Furnace Heating* sets forth some interesting facts with regard to the history of the warm air heater. Like most other inventions, it is the result of an evolution, stimulated by a need—the need for pure fresh air properly warmed in winter time. Mr. Neubecker writes concerning the evolution of the warm air heater as follows:

“The warm air heater was the original form which developed the later date methods of heating, and its advent, or we may possibly say its invention, was the direct result of necessity. Probably many of our readers know the story of the introduction of the warm air heater; nevertheless the telling of its history is interesting enough to bear repetition. The open fireplace had been found to be extravagantly wasteful of fuel and inadequate to properly heat the exposed parts of a room. The fireplace heater and later the stove were evolved to prevent this waste and to make possible a means to locate the source of the heat where it would prove most effective.

strictest test, that of actual usage, has been applied to many makes of warm air heaters. Specific needs in certain cases and experience brought forth many advantageous improvements in warm air heaters in general. The perfect heater has not been produced yet. In fact, there is no perfect machine in any line of endeavor. It will be seen that the warm air heater invention was not the result of a spontaneous idea originating in the mind of one person. Rather, it was the product of a deep seated need, brought about by the centralization of humanity—the gradual weaning of the earth's populace from nature's lap. Each new need required of the warm air heater effected a change in its construction. Now, in the main, the general details of construction of the warm air heaters do not differ. True, there are some points of distinction in various heaters. The materials used in manufacture may be differently selected. The workmanship may be of a better or a poorer grade. Still, each of the standard makes of warm air heaters on the market today fills a specific group of needs for proper and healthful heating.

“With the growth of the country, the forests were cut away. As towns and cities grew in size, the cost and inconvenience of obtaining fuel, and the further fact that this centralizing of business and people, demanded larger and larger buildings to accommodate the conditions, made it imperative that some method should be produced whereby the labor of attending so many fires could be overcome.

“This led to the invention, if it may be called so, of the warm air heater, which in its early stage was

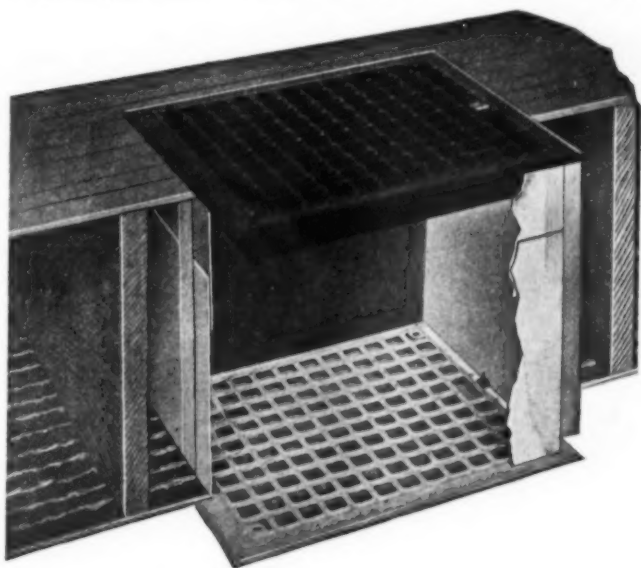
nothing more than an extremely large stove encased in brick, combining, in a measure, the principles of Dr. Franklin, who in 1744 invented the wood stove, with the hollow back or casing, having an air duct or cold air tube through which air from outside the building was heated and introduced into the room in which the stove was located.

“The discovery and use of anthracite coal as a fuel proved a great factor in developing the possibilities of warm air heating. The early development of the warm air heater was largely the result of experimenting by Dr. Henry Ruttan.”

Since Mr. Ruttan's experimentation, however, the

### **VENTILATOR IS EASILY INSTALLED.**

Installers can readily see the simplicity of the construction of the West Adjustable Ventilator, illustrated herewith, manufactured by The Henry-Miller Foundry Company, Cleveland, Ohio. In order to install this ventilator merely tack the tin strap to the floor. Then set the register in place and the job is completed. The West Adjustable Ventilator has a well-defined purpose. In houses of two stories where a pipeless warm air heater is used, every bit of heat can be used to good purpose. The heat that would otherwise seep



West Adjustable Ventilator, Made by The Henry-Miller Foundry Company, Cleveland, Ohio.

through the cracks in the house is directed to the upper rooms, by means of the ventilator depicted herewith. A better circulation of the warm air is thereby insured. Satisfaction can be gained from pipeless warm air heaters by installing the West Adjustable Ventilators, declare the makers. These ventilators are manufactured of carefully selected materials. They will last for an uncommonly long time. Considering the ease with which they can be installed and their aid in economically utilizing the heat, it can be seen wherein a saving in fuel can be effected by installing the West Adjustable Ventilator, say the manufacturers. For complete information pertaining to the product illustrated and described above write to The Henry-Miller Foundry Company, Cleveland, Ohio.

Every man is broad minded enough to detest selfishness in others.

# PRACTICAL HELPS FOR THE TINSMITH

## FAIRING BOAT LINES.

By C. W. KOTHE.

In a previous article we treated the hull of a launch in a general way, and to make the process of fairing the lines plainer to the workman, the annexed diagram is prepared. We have the forward body plan, sheer and half breadth. The main point is to note how the intersections take place between the moulded edge cants of half breadth and body plan with sheer view.

In this case we use another drawing to illustrate our problem. What are the level or water lines are in this case curved in the sheer view. This is produced by placing the so-called water lines in a diagonal position, and through this means the diagonals in sheer view are established. Then by means of square lines in half breadth plan, picking the distances as A-1; A-2; A-3, etc., from the center line M-N, transfer them to make the cants in body plan. This will give the square frame of body plan. Now the moulded edge cants are drawn as cant 1-2-3. These will be the angles the frames will take as a means of greater resistance to external pressure.

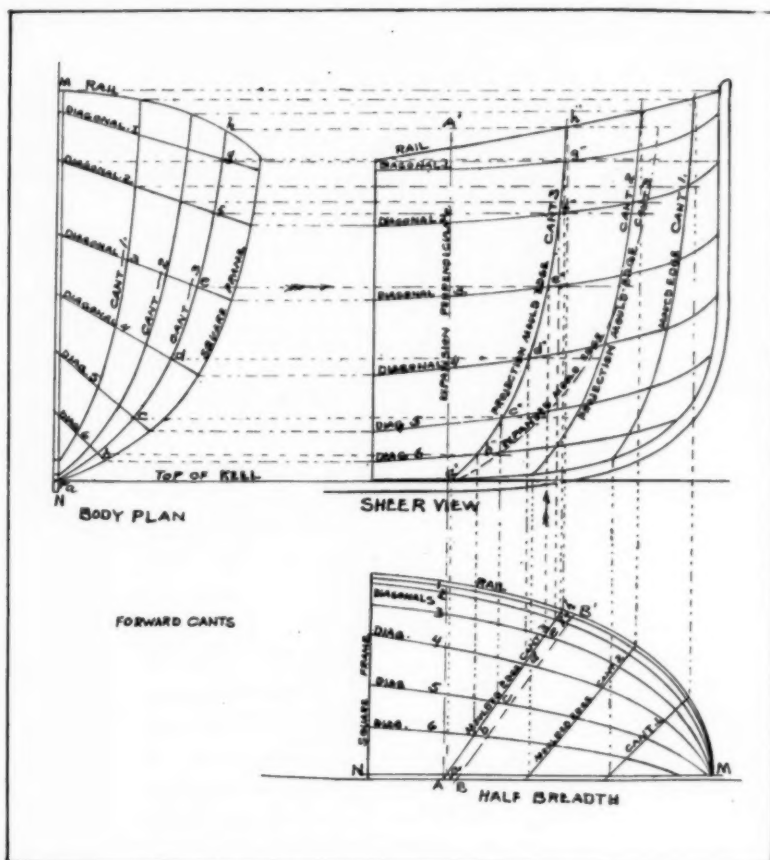
Let us develop cant 3, so from each point as a-b-c-d-e-f-g-h in half breadth plan erect lines into sheer view. Then from each similar point as a-b-c-d, etc., of can 3 in body plan square over horizontal lines to intersect those in sheer view. This gives us points a'-b'-c'-d'', etc., and enables tracing the projection moulded edge cant 3. These cant frames are always fitted abaft of the transom, and in largest and very full ships. We call them cant frames because they are not square to the center line of vessel. In this way we treat each individual cant until all points in the three positions correspond.

All this is perfectly plain to most metal workers in ship yards, but it will seem somewhat Greek to the inland tradesman. The matter of fairing the lines and developing the many peculiar curves is not easy. Practical judgment must be displayed, and it is better to have worked in such places for a considerable time. The matter of fairing lines for small boats is also embodied in this diagram. Often we find life boats made on this order. In future drawings we shall take up a few life boat outlines so the application will be perfectly clear.

Many a man would gladly take the bull by the horns—if the bull would stand for it.

## PLANS SHEET METAL ORGANIZATION FOR STATE OF INDIANA.

According to advices from Edwin L. Seabrook, Secretary National Sheet Metal Contractors of the



Fairing Boat Lines.

United States, sufficient pledges of cooperation and support have been received from various sheet metal contractors of the state of Indiana to warrant calling a convention for the purpose of organizing a state association. Tentatively the convention is to be called during the month of February, 1920. The precise date has not yet been determined. The sessions of the convention will be held in Indianapolis, Indiana. Particulars will be published as soon as arrangements shall have been perfected.

## INVENTS A NEW ALUMINUM.

A report from United States Consul Philip Holland, stationed at Basel, Switzerland, states that a new invention called "conducting aluminum" has been made by Dr. George Giulini, the most noted expert in the aluminum trade. This new metal is produced by putting the ordinary aluminum through a special patented process, by which it acquires the same mechanical qualities and capacities as bronze, copper and brass, without changing its specific weight. It is said the price of the new metal can be kept within low lim-



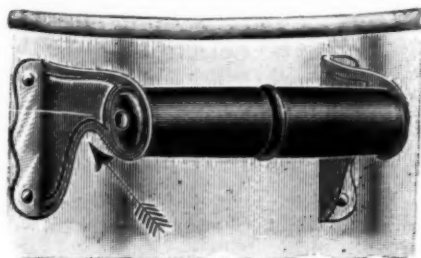
its, so that, even at the pre-war prices of other metals, it will be able, by reason of its smaller specific weight, to compete with copper and brass favorably. The fact that the new metal is a conductor will make it especially in demand in the electrical trade.

### **ST. LOUIS SHEET METAL TRADE IS PLANNING ANNUAL BANQUET.**

There is no clannishness in the sheet metal trade of St. Louis, Missouri. It is true that the trade is well represented in two organizations, namely, the Sheet Metal Contractors' Association of St. Louis, and the Sheet Metal Consumers' Protective Association, but these organizations do not constitute a clique. They are not exclusive in the sense of desiring to monopolize ideas or friendships. Indeed, their prevailing spirit is one of hospitality and helpfulness. Consequently in planning their ninth annual banquet and installation of officers for January 3, 1920, at the American Annex, 6th and Market Streets, St. Louis, Missouri, they are sending out an invitation to everyone engaged in the sheet metal business regardless of whether or not the person chances to be a member of either association. The Banquet Committee in a circular to the trade places special stress upon this phase of the Associations, saying: "The fact that you are engaged in the sheet metal business entitles you to the right to participate in our gatherings, to become familiar with us and accord us the same privilege." The Banquet Committee announces that "there will be a select Cabaret Entertainment, also refreshments and cigars after the Banquet, to enliven that free and open exchange of opinions among competitors that leads to closer friendship and better understanding of men trying to make a livelihood in the same line of business."

### **PRODUCES STRONG BOILER HANDLE.**

The Keystone Boiler Handle Number 40, manufactured by the Berger Brothers Company, Philadelphia Pennsylvania, illustrated herewith, is made to withstand the strain put on boiler handles in general.



Keystone Boiler Handle Number 40, Made by the Berger Brothers Company, Philadelphia, Pennsylvania.

Heavy weights can be borne up by these handles without the danger of breakage, due to defective parts, state the makers. The clips of this handle are made of heavy sheet steel. The handle is securely fastened. The metal being brightly tinned it presents a finely finished appearance. The handle is cupped for shoulder with wood and has countersunk holes so that when the heavy rivets are upset and drawn tight, the wood can never get loose. According to the manufacturer, these handles will outlast any boiler, no matter how good.

Besides the line of handles described, the Berger

Brothers Company manufactures a complete and standard line of tanners' and roofers' supplies. Included among the products made by this company are the following: Gutter hangers, conductor hooks, valves, plungers, snow shoe irons, boat pumps, etc. Write to the Berger Brothers Company, 229-231 Arch Street, Philadelphia, Pennsylvania, for a catalogue depicting the entire line of goods.

### **WITHDRAWS FROM THE SHEET METAL TRADE AFTER TWENTY-SEVEN YEARS OF ACTIVITY.**

Twenty-seven years of strenuous participation in the sheet metal trade certainly entitles Fred De Coningh to a much needed rest. Mr. De Coningh has been connected with The Sykes Sheet Metal Company of Chicago, Illinois. He will not engage in the sheet metal business henceforth. In announcing his withdrawal from the sheet metal industry, Mr. De Coningh declared his hopes that all concerned in it will prosper. He said that he left his former associates with only the most amiable feelings toward them. The length of Mr. De Coningh's rest is not stated. However, it is believed he will engage in some other business in the near future. At present, the nature of his future business activity has not been decided. **AMERICAN ARTISAN AND HARDWARE RECORD** will inform the many friends of Mr. De Coningh when he again enters the business world.

### **TELLS OF TIN OUTPUT IN ALASKA.**

The York district, of Seward Peninsula, continues to be the center of the tin mining industry of Alaska, according to the United States Bureau of Mines. Here, in 1919, two dredges and one small open-cut mine were operated on placer tin, employing some 25 men. Developments were also continued at the Lost River tin-lode mine in the same district, where about 25 men were employed. Some tin also was recovered in gold-placer mining in a few of the Yukon districts. Preliminary estimates indicate that about 40 tons of metallic tin was produced in Alaska during 1919.

No new deposits of placer tin have been discovered in the York district in recent years, and there is no certainty that this form of tin mining will be continued there when the deposits now being exploited are worked out. No tin placers which, under present economic conditions will warrant exploitation for their tin alone, have yet been found in the Yukon districts. When costs of operations are reduced placer tin mining may be developed in the Hot Springs district. The distribution of the alluvial tin in this district justifies the hope that tin bearing lodes may yet be discovered. Meanwhile, the best hope of the continuation of Alaska tin mining is based on the lode tin of the York district. The Lost River mine in this district is the only property sufficiently developed to justify the belief that it will soon become a producer, yet there are others in the district which deserve prospecting.

Chronic bargain hunters soon begin to look shopworn.

### WISCONSIN SHEET METAL MEN OPEN VOCATIONAL TRAINING SCHOOL AT MILWAUKEE.

The Master Sheet Metal Contractors' Association of Wisconsin has taken a definite step towards the advancement of the sheet metal industry in its section of the country. It was unanimously agreed by the Association to coöperate with the Industrial Commission of Wisconsin for the purpose of opening a sheet metal class in the local trade school at Milwaukee, Wisconsin. Mr. Stewart Schrimshaw is in charge of the Apprenticeship Department of the Industrial Commission. It is surmised that the school will open with about 25 to 30 apprentices.

An interesting monograph of the courses of study in Sheet Metal is issued by the Wisconsin State Board of Vocational Education, which sets forth completely the subjects to be offered. It has been prepared by John Callahan, secretary Wisconsin State Board of Vocational Education, W. F. Faulkes, E. E. Gunn, Jr., and A. K. Graham, Supervisors of Vocational Education. The course is as follows:

This course is planned for students who are employed in sheet metal shops and for those who desire elementary work preparatory for engaging in such work. The course as outlined is based upon such operations as are common to the ordinary job tinning shop and considerable emphasis is placed upon the hand processes in tinsmithing and sheet metal work.

The practical sheet metal course correlates closely with the pattern drafting and mathematics. It is recommended that the drafting be tied up closely with the work in the shop, so that the most practical methods may be used.

Acknowledgment is hereby given to Stout Institute, to the various directors and teachers of vocational schools in this state, and to others for the excellent service rendered in getting together the material which has formed the basis of this course.

#### Shop.

The problems follow the most approved shop methods, although some of the problems introduced into the course serve the purpose of a hand process, rather than being made by the commercial method. All of the work is of a productive character, and the problem forms a sequence of constructive problems involving the processes which cover the most approved practice of the trades.

#### Group 1. Soldering.

Fluxes; solders; furnaces; methods of heating; coppers and construction; preparing coppers; methods of soldering.

#### Group 2. Folding Edges and Seaming.

Single edge; double edge; wire edge; lap seam; folded seam; grooved seam: allowance method of transferring patterns to metal.

#### Group 3. Grooving in Cylindrical Work.

Forming cylinders; grooving; use of hand grooves and grooving machine; beading; use of beading machine; crimping.

#### Group 4. Double Hemmed Edge.

Use of hemmed edge; use of stakes; soldering.

#### Group 5. Wire Edge.

Purpose of wiring; allowance for wiring; wiring operation; use of wiring machine.

#### Group 6. Notching and Burring.

Purpose of notching; allowances; burring edges; use of burring machine.

#### Group 7. Double Seaming and Raising.

Double Seamed Bottom; edge allowance; peening; use of setting down machine; cover construction; use of template; raising process; riveting.

#### Group 8. Tapering Forms.

Use of stretch-out; pyramid and cone; flaring construction; two piece articles; shaping.

#### Group 9. Radial Developments.

Use of steel square; difficult seaming and wiring; assembling parts; radial pattern developments.

#### Group 10. Parallel Constructions.

Methods of making stretch-out; two piece construction.

#### Group 11. Intersections.

Layouts; methods of joining; notching; fitting.

#### Group 12. Miter Constructions.

Methods for laying out patterns; inside and outside miters; return miters; octagonal forms; panels; ornamental forms.

#### Drawing.

The drawing must correlate closely with the patternmaking required in the shopwork. As the drawing requires considerable use of the drawing instruments, the preliminary work must include problems making use of the drawing tools. The making of the stretch-outs for the shopwork may well be a part of the work of the drawing class during the latter half of the course, although simple patterns may be made of models during the beginning of the drawing work.

#### Group 1. Straight Lines.

Exercises involving the use of the Tee square and angles, constructing figures having horizontal, vertical and oblique lines.

#### Group 2. Geometrical Construction.

Problems of a geometrical character using the dividers and compass and becoming familiar with the terms radius, diameter and circumference. Simple layout of patterns involving the circle. Use of sheet metal workers' rule.

#### Group 3. Circular Forms.

Construction of circular forms, including circles tangent and intersecting—hexagons, pyramids and cones.

#### Group 4. Elementary Construction.

Drawing a rectangular box, developing the layout with construction allowances. Preferably this problem should be developed full size.

#### Group 5. Circular Construction.

Drawing a simple circular construction, avoiding any flaring parts. From the orthographic drawing develop the stretch-out for the shop. Develop the stretch-out from a scale drawing.

#### Group 6. Cylindrical Construction.

Develop cylindrical forms with a part fitted to the cylindrical part. Make pattern for stretch-out with details indicating construction.

#### Group 7. Pyramidal Construction.

A. Develop forms based upon the square pyramid, showing the method of obtaining the stretch-out from the elevation.

B. Develop hexagonal forms from the elevation. Determine the true length in selecting radius for stretch-out.

#### Group 8. Conical Construction.

A. Develop drawings based upon the cone, using the radial methods.

B. Develop problems based upon frustrum of cones, including intersecting parts. Develop stretch-outs from elevations using both the long and short methods.

#### Group 9. Flaring Construction.

Develop flaring forms of cylindrical form, and lay out patterns by the steel square method. Half elevations and sections.

#### Group 10. Parallel Forms.

Development of parallel forms and intersecting parts. Determine the measurements of pattern from the plan and elevation. Develop a two piece pattern.

#### Group 11. Intersection.

Make elevation and plans of intersecting cylindrical parts of different diameters. From the plan and elevation obtain the dimensions for constructing the stretch-outs for the various parts.

#### Group 12. Developing Miter.

Use the parallel method for developing the patterns. Develop patterns from full size profile. Use the short method in developing square miters. Panel developments. Ornamental layouts and pattern.

#### Mathematics.

It is assumed that while the average pupil is pursuing the elementary projects in sheet metal construction, he will also be obtaining the essentials in arithmetic, so that when he is working with the advance sheet metal projects, he will be ready to take up the more direct applications as suggested in the following outline.



The mathematics of the sheet metal maker involve very largely calculations in mensuration and elementary plane geometry. Inasmuch as problems in mensuration include drawings as part of the problems, hence the arithmetic of the sheet metal trade is almost wholly a mathematical interpretation of the problem in hand. The making of patterns constitutes the "stock in trade" of the sheet metal worker, and each worker in this trade must be able to construct accurate and practical patterns.

As a consequence, drawings and mathematics will be closely correlated in one lesson. However, drawing must have for its chief purpose practical construction of the pattern in hand, and must not be complicated or the construction made impractical for the purpose of making a mathematical correlation. Mathematics will deal exclusively with quantitative measurement, and must deal with the problem as worked out in the drafting of the pattern.

For convenience, the following course has been divided into four parts as follows: First: mensuration including definitions of simple geometrical elements and elementary problems in construction involving the use of the Tee square, triangles, protractor, and compass. Second: computing quantitative measurements of sheet metal problems. This part of the course will follow closely the drafting of the problems to be worked out in the shop. Third: computing quantitative measurements and moulding construction. Fourth: study of formulas, tables, figuring bills of material and of other commercial and technical calculations that will be helpful to the trade worker.

**Group 1. Mensuration—definitions.**

- A. 1. Lines;—horizontal, perpendicular, oblique.
2. Angles;—vertex of angle, obtuse, acute, right.
3. Triangles;—equilateral, isosceles, scalene, right angle.
4. Arches;—circumference, diameter, radius.
- B. Elementary construction problems involving the use of the drafting instruments;—Tee square, 45° angle, 30°-60° angle, protractor, and compasses.

**Group 2.**

- A. Problems computing measurements involving modifications of the square, rectangle, triangle and circle, as applied to practical sheet metal constructions including allowances common to the most up-to-date commercial practice. Examples—straight sided boxes, cookie cutter, cup, etc.
- B. Problems computing measurements involving flaring constructions based upon the square and rectangle, including the usual allowances common to the best commercial practice. The arithmetical calculations should take into consideration the methods most common in the commercial field as regards standard forms and material.
- C. Problems computing measurements of constructions involving modifications of the cylinder, pyramid and cone, with the usual allowance common to the best commercial practice. These problems will also include the layout embraced in parallel and radial developments.
- D. Problems computing measurements of constructions involving sections and intersections of parallel forms common to the best commercial practice, including the usual allowances.
- E. Computing measurements of constructions involving sections and intersections of radial developments, and simple problems in triangulation. Such methods to include the "short cuts" common to the best commercial practice.

**Group 3.**

- A. Computing measurements of miter patterns and simple geometrical mouldings used in cornice construction.

**Group 4.**

- A. Study of simple formulas and their application to the sheet metal trade.
- B. Analyzing and formulating tables for the purpose of tabulating arithmetical calculations useful to the sheet metal worker.
- C. Making out bills of material, stock calculations, cost of labor, etc., common to the trade.

**Science.**

**Group 1. Materials.**

Preparation of metallic surfaces—oxidation, fusing temperature, tin plate, galvanized iron; copper; brass; zinc; black and Russian iron; German silver; bronze; aluminum.

**Group 2. Solders.**

Composition; soft solder; hard solder; silver solder; gold solder; fusible temperatures; impurities; chemicals retarding action of solder.

**Group 3. Fluxes.**

Composition; chemical action; preparation of solutions; chloride of zinc; resin; hydrochloric acid; nitric acid; oxidation; sal ammoniac; borax; interfusion.

**Group 4. Brazing.**

Composition of "spelters;" melting temperatures; method of cleaning surfaces to be brazed; different methods of brazing; fluxes for brazing various materials; chemical action; sweating process.

**Group 5. Soldering Irons and Coppers.**

Material; sizes for various kinds of work; retaining heat; shape, its purpose; annealing copper; tinning process; use of sal ammoniac and resin; prevention of oxidation of coppers; effect of oxidation.

**Safety.**

**Group 1. Preliminary.**

Care in regard to loose clothing, handling material around the furnace and forge. Avoid putting fingers and hands on face and in mouth after handling materials in and about the soldering and furnace bench. Be careful about inhaling fumes from the furnace and forge.

**Group 2. Soldering.**

Use care in handling acids and materials used in soldering. Do not touch soldering coppers with hands. In tinning coppers use a brick—avoid dropping pieces into molten solder or metal.

**Group 3. Preparing Fluxes.**

Use care in mixing acids—avoid getting acid on hands and clothing. Do not inhale the fumes from bottles containing chemical solutions.

**Group 4. Materials.**

Be careful in handling tin plate and other thin metal sheets; look for ragged edges and burrs. Use gloves in handling large amount of tin plate and iron.

**Group 5. Machines.**

Use care in operating machines. Do not use a machine until you understand the operation of the various parts. Do not place fingers or hands under the blade of shears. While operating machine avoid having clothing hanging loose about the arms. Keep fingers out of the gears on the various machines. Do not place foot on treadle of power machines until everything is ready for the operation.

**Group 6. Miscellaneous.**

Do not throw materials and tools on the floor, as these may cause an accident. Do not lay hot coppers on the wood-work bench. Do not leave jars and bottles containing flux open when not in use.

**PREPARES TO FORM AN ASSOCIATION OF SHEET METAL CONTRACTORS OF PENNSYLVANIA.**

A state association of the sheet metal contractors of Pennsylvania is to be organized at a convention called to meet in the Penn-Harris Hotel, Harrisburg, Pennsylvania, Thursday, January 8, 1920. The preliminary work has been under the able guidance of Edwin L. Seabrook, Secretary National Association Sheet Metal Contractors of the United States, Philadelphia, Pennsylvania. All the local associations of sheet metal contractors throughout the state of Pennsylvania have endorsed the movement for the formation of a state organization. Consequently, there is no question of the successful issue of the plans which have been devised for the first convention in Harrisburg. Representatives from each of the locals will meet in Harrisburg, January 7, 1920, the evening before the opening of the convention, and arrange the necessary details so that when the convention adjourns the following day a state organization will have been formed ready for business. An instructive program has been drawn up for the convention and topics of importance to sheet metal contractors will be discussed briefly during the sessions of the convention.

### SITUATION MAKES IT GOOD MARKET.

If you are located anywhere west of a point half-way between Pittsburgh and Chicago, the logical buying market for structural steel, bars, sheets, plates, roofing, rivets, track spikes, track bolts, tie plates, and Vismara Iron, is the Inland Steel Company, First National Bank Building, Chicago, Illinois. This company has branches in eleven of the most important cities between the points mentioned above. Vismara Iron, said to be a non-corrosive, rust-resisting metal, is declared by authorities to be an ideal metal for tanks, culverts, flumes, gutters, roofing and any other articles exposed to the elements or to acids and corrosive fumes. The process of producing Vismara Iron, state the manufacturers, makes it as strong as steel, as rust-proof as copper and as workable as iron. Vismara Iron is sold in sheets and plates. Write to the Inland Steel Company, First National Bank Building, Chicago, Illinois, for data concerning the manufacture and prices of their various products.

### DELIVERS ORDERS WITH DISPATCH.

Time is money. In the building trade this is especially true. Sheet metal contractors have lost large sums because of delayed deliveries of materials. Even when the slow delivery of the necessary material does not mean a direct loss of money, it may mean the loss of business which could be gained during the interim of waiting. Instant filling of orders, is the claim of Tanner and Company of Indianapolis, Indiana. A complete stock of everything required by sheet metal workers enables them to comply promptly with orders sent to them. Tanner and Company are the distributors of many well-known makes of ventilators, tools and machines, pipe and fittings, etc. The promptness with which they fill their orders does not detract from the careful packing of them which they are known to do. A communication to Tanner and Company, Indianapolis, Indiana, will bring a catalogue describing the complete line of goods carried by them.

### BUSINESS DOES NOT STAND STILL.

A business won't stand still and wait while you dally around, wondering what to do. The different departments are like several horses pulling the same wagon. If one of them stops, the wagon is on his heels and the whole thing piles up in confusion.

### NOTES AND QUERIES.

#### Outfit for Repairing Automobile Radiators.

From Gust Baker, 1147½ Tacoma Avenue, Tacoma, Washington.

Can you advise who manufactures automobile radiator repair outfits?

Ans.: F. L. Curfman Manufacturing Company, Maryville, Missouri, furnish such outfits.

#### Jewel Heat Regulator.

From White Plumbing and Heating Company, 613 Sixth Street, Charleston, Illinois.

Kindly inform us who makes the Jewel heat regulator.

Ans.: George M. Clark and Company, Division

American Stove Company, 179 North Michigan Avenue, Chicago, Illinois.

#### Aluminum Ware.

From Hagen and McCormac, 211 Main Street, Ames, Iowa.

Will you please give us the address of the Great Northern Manufacturing Company, manufacturers of aluminum ware.

Ans.: They are located at 215 West Randolph Street, Chicago, Illinois.

#### Automatic Cistern Cleaner.

From Rockton Hardware Company, Rockton, Illinois.

We would like to know where we can secure an automobile cistern cleaner.

Ans.: C. M. Kemp Manufacturing Company, Gilford Avenue, Baltimore, Maryland, and Erwin and Company, 3736 Cottage Grove Avenue, Chicago, Illinois.

#### Steel Wire Furnace Brushes.

From J. J. Goriell, Winamac, Indiana.

Can you furnish me with addresses of some makers of steel wire furnace brushes?

Ans.: American Brush Corporation, Incorporated, 1222 West Madison Street, Chicago, Illinois; J. H. Clark Hardware Company, 137 West Lake Street, Chicago, Illinois, and Phoenix Brush and Manufacturing Company, 160 North Wells Street, Chicago, Illinois.

#### Aluminum Castings.

From H. E. Fendring, Standard Plumbing and Heating Company, Greybull, Wyoming.

Please tell me where I can obtain aluminum castings.

Ans.: Aluminum Castings Company, 111 West Wabash Avenue; Advance Pattern and Foundry Company, 558 West Washington Street, and Sigler-Dick Company, 25 West Kinzie Street, all of Chicago, Illinois.

#### Cotton Wicks.

From Reiche Brothers, Naperville, Illinois.

Where can we secure sixteen inch cotton wicks for a number 150 Chattanooga Oil Heater?

Ans.: Cleveland Perfection Oil Company, Cleveland, Ohio.

#### Sheet Metal Working Machinery.

From Frank A. Kellman, Galesville, Wisconsin.

Can you supply me with names of companies making sheet metal working machinery?

Ans.: Berger Brothers Company, Philadelphia, Pennsylvania; Bertsch and Company, Cambridge City, Indiana; Dreis and Krump Manufacturing Company, 2915 South Halsted Street, Chicago, Illinois; Friedley-Voshardt Company, 733 South Halsted Street, Chicago, Illinois; Niagara Machine and Tool Works, Buffalo, New York, and Peck, Stow and Wilcox Company, Cleveland, Ohio.

#### Oakum Asphaltum Saturated Cord.

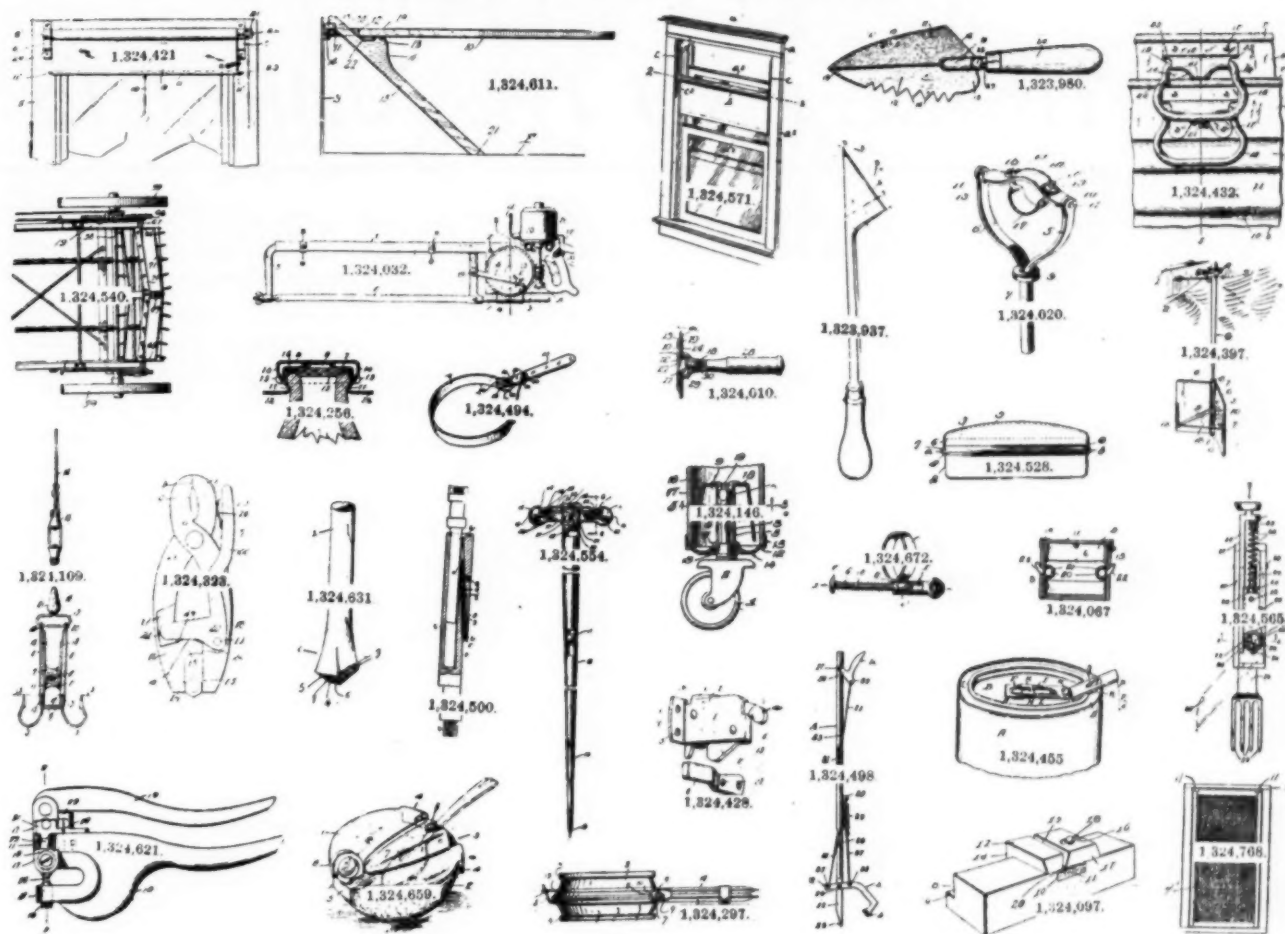
From Samuel A. Spencer, Corner North Temple and Third West, Salt Lake City, Utah.

Can you tell us who manufactures Oakum asphaltum saturated cord?

Ans.—New York Cordage Company, 123 Front, New York City; N. B. Woolford Oakum Company, 601 South Luzerne Avenue, Baltimore, Maryland; American Manufacturing Company, Noble and West, Brooklyn, New York, and Chelsea Fibre Mills, 212 Fifth Avenue, New York City.



## NEW PATENTS.



1,323,937. Carpenter's Knife. Alois Weinbacher, Oshkosh, Wis. Filed May 21, 1919.

1,323,980. Trowel. William I. Hare, New York, N. Y. Filed April 25, 1919.

1,324,010. Razor. Charles H. Hyman and Joseph F. Moeller, Chicago, Ill., assignors to 4 in 1 Safety Razor Company, Bismarck, N. D., a Corporation of North Dakota. Filed April 26, 1919.

1,324,020. Oar-Lock. Hugo E. Hartwig and Thomas A. Thompson, Hutchinson, Minn. Filed April 10, 1919.

1,324,032. Power-Handsaw. Edwin C. Buell and Hilbern L. Steenrod, Detroit, Mich. Filed Oct. 13, 1916.

1,324,067. Coal-Sifter. Albert Ritsema, Wichert, Ill. Filed May 27, 1918.

1,324,097. Scissors-Sharpener. James M. Allen, St. Louis, Mo., assignor of one-half to Rudolph Lobsinger, St. Louis, Mo. Filed Dec. 26, 1918.

1,324,109. Fish Baiting and Catching Device. Albert R. Dutes, Columbia, S. C., assignor, by direct and mesne assignments, of one-half to Robert W. Gibbes, Columbia, S. C. Filed May 29, 1916.

1,324,146. Caster. Albert B. Diss, Newark, N. J., assignor to The Bassick Company, Bridgeport, Conn., a Corporation of Connecticut. Filed March 31, 1919.

1,324,256. Bottle-Stopper. William B. Langan, Hawley, Pa., assignor to Koscherak Siphon Bottle Works, Hoboken, N. J., a Corporation of New Jersey. Filed Aug. 17, 1918.

1,324,297. Pie and Cake Baker. Bernard L. Braddick, San Diego, Calif. Filed July 7, 1919.

1,324,323. Compound Tool. Edwin J. Scarseth, Galesville, Wis. Filed May 15, 1917.

1,324,397. Oar. Cleveland W. Hobart, Brookville, Fla. Filed June 6, 1919.

1,324,421. Window-Shade. Pietro Biasucci, Yukon, Pa. Filed Aug. 14, 1919.

1,324,428. Latch for Gates and the Like. John Thomas Mair, Khandallah, near Wellington, New Zealand. Filed April 11, 1917.

1,324,432. Portable Circular Sheet-Metal Tub. Charles F. Pfalzgraf, Baltimore, Md. Filed Aug. 17, 1915.

1,324,455. Can-Opener. Charles A. Lefevre, Pontiac, Mich. Filed March 20, 1919.

1,324,494. Jar-Opener. Edward W. Carpenter, Bridgeport, Conn., assignor to E. W. Carpenter Manufacturing Company, Bridgeport, Conn., a Corporation of Connecticut. Filed May 12, 1919.

1,324,498. Device for Removing Clinkers from Furnaces. John A. Emerson, Chicago, Ill. Filed Aug. 30, 1919.

1,324,500. Fishing-Tool. Vincent H. Francis, Drumright, Okla., assignor to Frick-Reid Supply Company, Pittsburgh, Pa., a Corporation of Pennsylvania. Filed Nov. 21, 1918.

1,324,528. Metal Container for Shoe-Polish and the Like. Thomas Lucien Taliaferro, Chicago, Ill. Filed Sept. 6, 1919.

1,324,540. Manure-Spreader. Orson Bucklin, Marietta, Minn. Filed Aug. 31, 1918.

1,324,554. Combined Cane and Fishing-Rod. Joe Kozlowski, Toledo, Ohio. Filed July 2, 1919.

1,324,565. Combined Knife and Fork. Aleck Przybylek, Newark, N. J. Filed Aug. 23, 1919.

1,324,571. Curtain-Fixture. Alva C. Thomas, Royal Oak, Mich. Filed Feb. 3, 1919.

1,324,611. Ironing-Board. Joseph Mitchell, Salisbury, Md. Filed Aug. 7, 1919.

1,324,621. Hand-Punch. Heyman Rosenberg, New York, N. Y. Filed May 19, 1919.

1,324,631. Drill-Bit. Wilfred E. Usrey, Bingham Canyon, Utah. Filed March 2, 1918.

1,324,659. Fruit-Eating Shield. Joseph Robert Gibson, Chicago, Ill. Filed May 20, 1919.

1,324,672. Twine-Cutter. Carl Edward Hempel, Pasadena, Calif. Filed Jan. 23, 1918.

1,324,768. Screen-Hanger. Howard L. Agee and Sidney A. Agee, Fort Worth, Tex. Filed May 20, 1919.

## WEEKLY REPORT OF TRADE AND THE MARKETS

### ENDING OF COAL STRIKE PERMITS STEEL INDUSTRY TO RESUME RATE OF PROGRESS.

As a consequence of the ending of the coal shortage the steel industry may now get back into its stride again—the stride halted first by the strike of the steel workers, then handicapped by the lack of available freight and finally almost knocked out by the coal strike. The position of steel consumers in the United States, the large amount of necessary construction work to be done and the tremendous needs of the railroads, brook no interference with the steel industry, and it is to be hoped that the future will hold more clear sailing for the producers than the period dating from the armistice has held.

The demand for all descriptions of steel is so great that the producers are supplying what they can and are not trying to fill the demand save from old customers, so that consumers which have no regular mill connection have been hard put to it to obtain supplies. The smaller producers have been demanding—and getting substantial premiums for deliveries, but the larger producers, including the leading interests, have been holding to the old price schedule in making contracts and are endeavoring to hold the market down as much as possible, believing that any advance in prices would ultimately work to the detriment of the industry as well as the country at large, as it would only mean higher wages for the employees and another "pack-up" to the general high costs of everything.

There is a very heavy demand for all kinds of finished iron and steel and the mills are not in a position to take care of any substantial percentage of the inquiry. Automobile manufacturers are in a bad way for supplies and are offering as high as \$20 per ton premium for sheets, although the large companies are turning down this business, leaving it to the smaller fry.

Shapes and plates and all descriptions of fabricated steel are meeting with an enormous demand and it is reported that the leading interest has been allocating its output of sheets and tin plate since it started to sell for 1920, and is practically sold up for the first six months already, counting the orders for sheets and plates on hand now, which will have to be carried over into next year.

### STEEL.

The inquiry for steel for the domestic trade is exceptionally large, without even taking the railroad demand into consideration and should the roads come into the market now for large supplies it would be practically impossible to supply them. As it is, the needs of the roads will be strung along through next

year and with the mills working at capacity it is probable that all of the needs can be supplied, but the steel industry will require smoother operating conditions than have been offered for some time past.

### COPPER.

The general improvement in the undertone of the copper market continued during the week, and as the speculative element has been eliminated from the dealings, producers were able to hold quotations steady for electrolytic for delivery over the first quarter of the coming year.

Domestic demand continues on a fair scale and is estimated at from 80,000,000 to 100,000,000 pounds monthly. Foreign demand is around 40,000,000 pounds per month, which is considered pretty fair if the prohibitive foreign exchange rate is counted in. November sales for domestic and foreign consumption are given as 140,000,000 pounds, which would be in excess of present smelter production.

The scarcity of coal and severe winter weather were responsible for a reduction in output of Western smelters in the past two weeks but with the coal miners' strike settled, a resumption of work at the plants in Montana may be expected in the course of next month, weather conditions permitting. The reduced production and increased demand were reflected in a further fractional advance in prices during the early part of last week.

One encouraging feature, indicating increased future demand for home melting, is that the railroads must soon provide for an unusually large amount of equipment, including cars and locomotives, the building of which will require an appreciable tonnage of copper. It is claimed that it will be necessary for the railroads to expend 440 million dollars for equipment to place the roads in as good physical condition as they were when taken over by the government. Power companies have recently made some liberal purchases of copper wire and their requirements are far from being satisfied.

Prices for copper sheet in the Chicago market remain at 28½ cents per pound.

### TIN.

Reports indicate that the production of Banca tin seems to have fallen off to some extent and that recent dealings through the London operators have been with the Continent where Banca tin was always preferred to other kinds; shipments are being made constantly to Holland, from which point it is reaching Germany and adjacent countries.

The transactions in Chinese tin continue small, for while the producers are disposed to sell prices are too



high relative to other kinds and exchange is against them. It is said that any drop in exchange would bring out large quantities from China.

Great irregularity was noted in the market for tin last week and prices moved sharply up and down following the fluctuations in the foreign centers, being also influenced by the movement in the sterling exchange. As the London market is highly speculative, much of the continued advance in London might be attributed to the covering of shorts, but the decline in the world's tin supply apparently has also a part in the higher tendency.

In the domestic market tin was offered more freely in view of reduced demand in the domestic industries, which are working only on half time under fuel restrictions. There is a fair supply in this country ready for delivery and incoming shipments are of good volume.

#### **LEAD.**

Advices from St. Louis are to the effect that the lead market is strong and the advance in the price of the leading interest is in no way surprising. Stocks are exceedingly light and supplies in the hands of consumers are below the danger line, while an increase of large proportions in the consumption is momentarily expected. There still appears to be no lead for sale in St. Louis on the basis of the price fixed by the leading interest, and offerings at any price are light.

In the Chicago market American pig lead has advanced from \$7.25 to \$7.50 per hundred pounds and bar lead from \$7.75 to \$8.00 per hundred pounds. Sheet lead in full coils has gone up from \$9.50 to \$10.10 and cut coils from \$9.75 to \$10.35 per hundred pounds.

#### **SOLDER.**

The quotations ruling the Chicago market for solder are as follows: Warranted, 50-50, per pound, 34.00 cents; Commercial, 45-55, per pound, 31.60 cents; Plumbers' per pound, 29.25 cents.

#### **ZINC.**

Zinc producers are limiting themselves to quoting what tonnage they must to their regular trade, but the favorable condition of their order books inclines them to be very sparing about taking on new business at the decline. For the most part indeed, they have withdrawn entirely. A prolonged absence of the foreign buying would undoubtedly lead to further depression, but the present level is not as tempting as it was on the way up, as ore has advanced in the meantime.

#### **TIN PLATE.**

There has been a quick resumption of several of the tin plate works that were idle last week on account of lack of coal. Of perhaps even more interest, in the long run, is the fact that the impetus of the coal strike being ended overrode the steel strike in the Wheeling district, as the leading interest is operating some mills at both the La Belle and the Laughlin works, in the Wheeling district, which had been completely idle since the beginning of the iron and steel strike September 22nd.

At least half, and probably considerably more than half, the available tin plate production for the first half of next year has now been put under cover, since the mills opened their books 30 days ago. The business would have been closed more quickly had it not been necessary for all producers to allocate their tonnages carefully, since buyers as a whole estimated their requirements at a greater tonnage than the mills had available, and each producer endeavors to take care of his regular trade. On an average the mills were in position to offer only a trifle more than three months' production as there is a heavy carryover. All the domestic business has been done at the regular price. Canadian business has as a rule been treated as domestic business rather than export.

In Chicago market, first quality bright tin plates, IC, 14x20, are quoted at \$13.60 per box of 112 sheets and other gages and sizes at corresponding figures.

#### **SHEETS.**

Sheet production has already increased since the setback given by the coal shortage. The leading interest has put the Gary sheet plant in operation again and today has 84 per cent of its sheet mills operating. Independents are operating at between 80 and 90 per cent.

Prospects are that the situation as to sheet supplies will ease off sooner in common sheets than in pickled and other specialties, as it is in those lines that the mills have fallen farthest behind-hand, and it is also for those lines that there has been the heaviest demand.

It is very difficult to place orders for black plate, enameling stock or indeed any tin mill specialties. This arises from the offerings being very limited rather than from consumptive demand being particularly heavy. Several of the tin plate interests that formerly did a large trade in uncoated product are out of the market altogether, at least at regular prices though some producers offer tin mill black at about \$10 a ton premium over regular prices.

#### **OLD METALS.**

Wholesale quotations in the Chicago district which may be considered nominal are as follows: Old steel axles, \$30.00 to \$31.00; old iron axles, \$32.50 to \$33.50; steel springs, \$21.50 to \$22.50; No. 1 wrought iron, \$22.50 to \$23.50; No. 1 cast, \$29.50 to \$30.50, all net tons. Prices for non-ferrous metals are as follows, per pound: Light copper, 13½ cents; light brass, 8½ cents; lead 4¾ cents; zinc, 4¾ cents; cast aluminum, 24½ cents.

#### **PIG IRON.**

Although the coal strike is ended this does not mean immediate betterment in the pig iron situation, which depends on the duration of the coke restrictions. Early recall may save some furnaces from banking, but the greater part of the furnaces will be compelled to go slow, for it will take at least a month before full coal production will be reached. Consumers of pig iron are trying to get all the spot iron available; some good size scattered tonnages were picked up, but all did command a fair premium over quoted prices.

# Current Hardware and Metal Prices.

AMERICAN ARTISAN AND HARDWARE RECORD is the only publication containing Western Hardware and Metal prices corrected weekly.

METALS.		LEAD.		Broad.		BEATERS.	
PIG IRON.		American Pig.....\$7 50		Plumbs, West, Pat.....List		Carpent.	
		Bar.....8 00		" Can. Pat.....\$69 00		No. 7 Tinned Spring Wire... \$1 10	
		Sheet.		Firemen's (handled),		No. 8 Spring Wire coppered... 1 50	
		Pull coils.....per 100 lbs. \$10 10		.....per doz. 21 00		No. 9 Preston..... 1 75	
		Cut coils.....per 100 lbs. 10 35		Single Bitted (without handles).		Egg.	
		TIN.		Warren Silver Steel.. on application		No. 50 Imp. Dover.....\$ 1 10	
		Pig tin.....58c		Warren Blue Finished.. "		No. 102 " " tinned... 1 35	
		Bart tin.....60c		Matchless Red Pole.....\$11 50		No. 150 " " hotel... 2 10	
		FIRST QUALITY BRIGHT		Double Bitted (without handles).		No. 10 Heavy hotel tinned... 2 10	
		TIN PLATES.		Warren's Natl. Blue, 3 1/2 to 4 1/2		No. 13 " " " 3 30	
		Per box		lb..... Prices on application		No. 15 " " " 3 60	
		IC 14x20.....112 sheets \$13 60		The above prices on axes of 3 to 4 lbs.		No. 18 " " " 4 50	
		IX 14x20.....15 10		are the base prices.		Hand.	
		IXX 14x20.....16 70		BAGS, PAPER NAIL.		8 9 10 12	
		IXXXX 14x20.....18 75		Pounds..... 10 16 20 25		Per doz.\$11 50 13 00 14 75 18 00	
		IC 20x28.....27 20		Per 1,000.....\$5 00 6 50 7 50 9 00		Moulders'.	
		IX 20x28.....30 20		BALANCES, SPRING.		12-inch.....Per doz. 20 00	
		IXX 20x28.....33 40		Pelouze.....20%		BELLS.	
		IXXXX 20x28.....35 20		BARS, CROW.		Call.	
		IC 20x28.....37 50		Pinch or Wedge Point, per cwt....\$8 50		3-inch Nickeled Rotary Bell,	
		COKE PLATES.		BASKETS.		Bronzed base.....per doz. \$5 50	
		Cokes, 180 lbs.....20x28 \$16 80		Small Willow.....per doz. 15 00		Cow.	
		Cokes, 200 lbs.....20x28 17 00		Medium Willow....." 17 00		Kentucky.....30%	
		Cokes, 214 lbs.....IC 20x28 17 40		Large Willow....." 23 00		Door.	
		Cokes, 270 lbs.....IX 20x28 19 30		Galvanized Steel. 1/2 bu. 1 bu. 1 1/2 bu.		New Departure Automatic...\$ 7 50	
		BLUE ANNEALED SHEETS.		Per doz.....\$11 50 \$17 00 \$22 00		Rotary.	
		No. 10.....per 100 lbs. \$4 85		AUGERS		3 -in. Old Copper Bell.....6 00	
		No. 12.....per 100 lbs. 4 90		Boring Machine.....60%		3 -in. Old Copper Bell, fancy. 8 00	
		No. 14.....per 100 lbs. 4 95		Irwin's.....25%		3 -in. Nickeled Steel Bell... 6 00	
		No. 16.....per 100 lbs. 5 05		Carpenter's Nut.....50%		3 1/2-in. Nickeled Steel Bell... 6 50	
		ONE PASS COLD ROLLED BLACK.		Hollow.		Hand.	
		No. 18-20.....per 100 lbs. \$5 70		Bonney's.....per doz. 30 00		Hand Bells, polished.....15%	
		No. 22-24.....per 100 lbs. 5 75		Stearns, No. 0.....43 25		White Metal.....15%	
		No. 26.....per 100 lbs. 5 80		" No. 1.....43 25		Nickel Plated.....10%	
		No. 27.....per 100 lbs. 5 85		" No. 2.....43 25		Swiss.....15%	
		No. 28.....per 100 lbs. 5 90		" No. 3.....42 00		Silver Chime.....10%	
		No. 29.....per 100 lbs. 6 00		" No. 4.....10 50		Miscellaneous.	
		GALVANIZED.		" No. 30.....45 00		Church and School, steel alloys...30%	
		No. 16.....per 100 lbs. \$6 50		" No. 33.....45 00		Farm, lbs... 40 50 75 100	
		No. 18-20.....per 100 lbs. 6 65		" No. 44.....45 00		Each.....\$3 00 3 75 5 50 7 25	
		No. 22-24.....per 100 lbs. 6 80		" No. 50.....48 00		BEVELS, TEE	
		No. 26.....per 100 lbs. 6 95		" No. 55.....45 00		Stanley's rosewood handle, new	
		No. 27.....per 100 lbs. 7 10		" No. 60.....42 00		list.....Nets	
		No. 28.....per 100 lbs. 7 25		Post Hole.		Stanley's iron handle.....Nets	
		No. 30.....per 100 lbs. 7 75		Iwan's Post Hole and Well...30%		BINDING CLOTH.	
		WELLSVILLE POLISHED STEEL.		Vaughan's, 4 to 9-in...per doz.\$ 14 00		Zincd.....55%	
		No. 18-20.....per 100 lbs. \$7 10		Ship.		Brass.....40%	
		No. 22-24.....per 100 lbs. 7 20		Ford's, with or without screw, Net list		Brass, plated.....60%	
		No. 26.....per 100 lbs. 7 30		Brad.		BITS.	
		No. 27.....per 100 lbs. 7 40		No. 3 Handled.....per doz. \$0 65		Auger.	
		No. 28.....per 100 lbs. 7 50		No. 1050 Handled.....1 40		Jennings Pattern.....20%	
		KEYSTONE HAMMERED		Shouldered, assorted 1 to 4,		Ford Car.....List plus 5%	
		POLISHED STEEL.		Patent asst'd, 1 to 4.....4 00		Ford's Ship....." "	
		28-26.....per 100 lbs. \$9 85		Harness.		Irwin.....35%	
		25-22.....per 100 lbs. 9 35		Common.....1 05		Russell Jennings.....15%	
		BAR SOLDER.		Patent.....1 00		Clark's Expansive.....33 1/2%	
		Warranted, 50-50.....per lb. 34.00c		Peg.		Steer's " Small list, \$22 00...5%	
		Commercial, 45-55....." 31.60c		Shouldered....." 1 60		" " Large " \$26 00...5%	
		Plumbers'....." 29.25c		Patented....." 75		Irwin Car.....35%	
		ZINC.		Scratch.		Ford's Ship Auger pattern	
		In slabs.....9c		No. 1S, socket hand'd, per doz. 2 50		Car.....List plus 5%	
		SHEET ZINC.		No. 344 Goodell-Pratt.....35-40%		Center.....10%	
		Cask lots.....13c		No. 7 Stanley.....2 25		Countersink.	
		Less than cask lots.....13 1/2 to 13 3/4c		AXES.		No. 18 Wheeler's.....per doz. \$2 25	
		COPPER.		Boys' Handled.		No. 20....." 3 00	
		Copper Sheet, base.....28 1/2c		Ningara.....12 50		American Snailhead.. " 1 75	